

UNITED STATES DISTRICT COURT
DISTRICT OF MASSACHUSETTS

* * * * *
EGENERA, INC., *
Plaintiff *
vs. * CIVIL ACTION
* No. 16-11613-RGS
*
CISCO SYSTEMS, INC., *
Defendant *
* * * * *

BEFORE THE HONORABLE RICHARD G. STEARNS
UNITED STATES DISTRICT COURT JUDGE
AND A JURY
CIVIL JURY TRIAL DAY 7
August 10, 2022

Courtroom No. 21
1 Courthouse Way
Boston, Massachusetts 02210

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P R O C E E D I N G S

(8:45 a.m.)

THE CLERK: All rise.

(Whereupon, the Court entered the courtroom.)

THE COURT: All right. I have my usual midnight flurry of motions, but we're waiting on just one juror, so my hope is we could get an early start again this morning.

But to go through them, therefore, very quickly, the first on my list is the slide 008 of PX-BQE.

I'm overruling Egenera's objection. The motion in limine went to the thousands of patents issued, not those that are directly related to the UCS, which these are.

In terms of the Rule 50 issue, of course I'm going to allow damages to be briefed. That was a cursory meeting, and normally you would get a lot of time to deal with thousands of issues. But just to keep things going, I prefer that the motion just be simply made for the record, which it was.

With respect to Mr. Jayakrishnan, I've already entered an order on that. My notes show that he was called an adverse witness by Egenera. He was asked his opinion about infringement, therefore, it's fair that he can reply to Dr. Jones's criticism of the opinions that he gave at Egenera invitation.

Finally, the charging conference. According to my

1 clock, we're going to finish the evidence around noon on
2 Friday when the time runs out. So I propose two o'clock
3 Friday afternoon, so we can get it behind us for the weekend
4 and be ready to start right with arguments and charge Monday
5 morning.

6 MR. DESMARAIS: May I ask a question, your Honor?

7 THE COURT: Yes.

8 MR. DESMARAIS: Is it your practice to charge
9 before the closing, or do you charge after the closing?

10 THE COURT: No, after. But my practice is to give
11 you a written copy of what I'm going to say to the jury
12 beforehand. I know some judges reverse it, but it
13 doesn't --

14 MR. DESMARAIS: I think it's better after, too.

15 THE COURT: I do because what you say is far more
16 interesting than what I say to the jury, and I would rather
17 be interested first, and then they can hear me drone on
18 about jury instructions.

19 MR. PACKIN: Your Honor, I think Mr. Desmarais
20 forgot to say damages during the --

21 THE COURT: I already ruled on that. I said of
22 course I will allow it.

23 MS. NOTIS-McCONARTY: Thank you, your Honor.

24 THE CLERK: All rise.

25 (Recess.)

1 THE CLERK: All rise for the jury.

2 (Whereupon, the jury entered the courtroom.)

3 (Whereupon, the Court entered the courtroom.)

4 THE CLERK: Resuming on the record in Civil Action
5 No. 16-11613, Egenera versus Cisco.

6 Please remember you're still under oath, sir.

7 THE WITNESS: Yes.

8 THE COURT: Good morning again, counsel.

9 Good morning, jurors. It's great to have everybody
10 back.

11 Once again, we're off early, which is excellent.

12 So let's resume.

13 **MIKE DVORKIN, resumed**

14 **DIRECT EXAMINATION, (Cont'd.)**

15 **BY MR. MAGIC**

16 Q Good morning, Mr. Dvorkin, again.

17 A Good morning.

18 MR. MAGIC: Could we have the ELMO, please.

19 Q Mr. Dvorkin, let's reorient ourselves.

20 And actually to begin with, I should have asked you
21 yesterday, but is this the first occasion, the first case,
22 in which you've had a chance to testify in a court?

23 A Yes, this is my first experience. It's the one for the
24 books.

25 Q So I just want to make sure you're comfortable.

1 So please make sure to move the microphone as close
2 to you as you can to make sure you don't have to lean
3 forward and it's comfortable for you.

4 A Yes.

5 Q Great. All right.

6 To reorient ourselves, we were yesterday working on
7 correcting Egenera's list, which was PDX-7-15 that we were
8 actually making changes to. And what we were doing was we
9 were just going to identify the five people who, according
10 to JTX-518, which is the other list we were using, which is
11 on the screen right now, just the people who actually came
12 from Egenera to Nuova.

13 So do you recall we were working on that?

14 A Yes.

15 Q So let's get back to where we left off yesterday in that
16 process.

17 You recall we started getting into some questions
18 about Mr. Blaine Lincoln? That was the first person that we
19 started talking about?

20 A Yes.

21 Q Okay. And do you recall that you told us he works in a
22 services role or worked at Nuova in a services role?

23 A Yes. He was one of the services guys from the service
24 organization working mostly with customer.

25 Q Yeah. So I just wanted to jump right back into that

1 questioning.

2 So, remind us. What's a services role?

3 A Services role is a customer-facing role where a customer
4 is buying new equipment, and they want to adapt it to their
5 own environment and figure out how to migrate applications
6 onto their new platform. And the job of people like Blaine
7 was to basically make the customer's transition to the new
8 platform a lot easier.

9 Q And is the services role a product design role?

10 A No, they don't design anything. They just work with the
11 customer.

12 Q And if we look back at the table, JTX-518 that's on the
13 ELMO right now, please remind us when Mr. Lincoln joined
14 Nuova?

15 A He joined in April of 2008.

16 Q And that was near the time of the acquisition of Nuova
17 by Cisco?

18 A That was very close to the acquisition, yes.

19 Q And how far along was the design of UCS at that time?

20 A Oh, it was like way complete at that point.

21 Q Sir, did Mr. Lincoln work on designing UCS?

22 A No, he didn't.

23 Q So what I am going to do is next to Mr. Lincoln's name,
24 in the corrected version of Egenera's table that we are
25 building, I'm going to write "did not design UCS." Do you

1 see that?

2 A Yes.

3 Q Okay. So now we're going to go on to the next person,
4 which is Mr. Jason Shaw.

5 And when did Mr. Jason Shaw join Nuova, Mr.
6 Dvorkin, according to Exhibit JTX-518?

7 A He joined sometime in 2008, towards the end of Nuova.

8 Q Yes. You anticipated my next question.

9 Was that close to the acquisition?

10 A Yes, that's correct.

11 Q So again, what was the state of the design of UCS at
12 that time by the time Mr. Shaw arrived?

13 A All of the design was complete.

14 Q So could Mr. Shaw have possibly designed UCS?

15 A No, he couldn't have.

16 Q Was there a Jason Shaw in any of the design meetings
17 that you attended?

18 A No.

19 Q Was he on your team that designed the UCS software?

20 A No, he wasn't.

21 Q And do you see Mr. Shaw's responsibilities listed as
22 "Services" in the JTX-518?

23 A Yes.

24 Q So again, does the services role have anything to do
25 with designing UCS?

1 A No. They don't design.

2 Q So did Mr. Shaw design UCS?

3 A No.

4 Q All right.

5 I'm going to update our table next to Mr. Shaw's
6 name, and I've written, "Did not design UCS."

7 Okay. Now we're going to move on to the third
8 party, Mr. Jeremy Moulton.

9 Do you see him in the table?

10 A Yes.

11 Q And so when did Mr. Moulton join Nuova?

12 A He joined in the end of 2007.

13 Q And in December of 2007 was -- well, what was the state
14 of the design of UCS?

15 A All of the design and architecture was complete. We
16 were done with that.

17 Q So could Mr. Moulton have designed UCS?

18 A No, he couldn't have.

19 Q Was there a Jeremy Moulton on your team that designed
20 the UCS software?

21 A No.

22 Q Was there a Jeremy Moulton that you remember in any
23 design meetings for UCS?

24 A No.

25 Q And what was Mr. Moulton's role at Nuova?

1 A Jeremy was a technical marketing manager. He was
2 focusing on the training materials for the customer in the
3 field.

4 Q Does that role have anything to do with designing the
5 product, designing UCS?

6 A No, the role has to do with educating the customer how
7 to use the system and training the field, field training.

8 Q So did Mr. Moulton design UCS?

9 A No, he didn't.

10 Q All right. I'm going to update our table of the exhibit
11 or the PDX that Egenera was using to say Mr. Moulton "did
12 not design UCS."

13 Okay. Now, we're going to move on to the last two
14 individuals.

15 Mr. Satinder Sethi is next. And so when did
16 Mr. Sethi join Nuova?

17 A The fall of 2006.

18 Q And Mr. Sethi, what was his job function at Nuova?

19 A Satinder joined us as a technical marketing person.

20 Q Now, Egenera has made a particular point about focusing
21 on this person and his joining of Nuova. So I want to be
22 clear about the role that this person, Mr. Sethi, had.

23 Is technical marketing a marketing role?

24 A Yes, it is a marketing role.

25 Q Is technical marketing a role that also interfaces with

1 product design people?

2 A No, they don't interface with the design people.

3 Q Did the technical marketing folks have their own type of
4 product requirements documents to sort of write down
5 features that they thought should be in the product?

6 A The technical marketing talks to the customer and
7 collects the requirements for the product. So like
8 usability, things like customer-facing stuff, the user
9 experience. They do collect the requirements.

10 Q What's the nature of that kind of product requirements
11 document that a technical marketing person makes compared to
12 the kind that an engineer makes?

13 A Technical marketing does the customer-facing
14 requirements. They don't represent the architecture or
15 define the architecture. They don't define the
16 implementation of the product.

17 They just identify how the product is consumed by
18 the customer and what the customer experience would be.

19 Q Do technical marketing folks tell engineering how to
20 implement features?

21 A No.

22 Q Do technical marketing employees make the ultimate
23 decisions over what features get into a product?

24 A No.

25 Q Is it up to architects like yourself to make those

1 decisions?

2 A Yes, that's correct.

3 Q Is technical marketing a software developer role?

4 A No.

5 Q Does a technical marketing person get to decide the
6 product architecture?

7 A No.

8 Q Does a technical marketing person get to design the
9 software code?

10 A No.

11 Q Has Mr. Sethi ever architected any part of UCS while he
12 was at Nuova with you?

13 A Absolutely not.

14 Q Was he ever in the engineering group at Nuova?

15 A No.

16 Q Did he participate in any design meetings for UCS?

17 A No.

18 Q Was he on your team that designed the UCS software?

19 A No.

20 Q So did Mr. Sethi design UCS?

21 A No. He was not involved in the design. He is a
22 technical marketing person. That's not what they do.

23 Q So I'm going to again update the table that we're
24 building to say that Mr. Sethi "Did not design UCS."

25 So that brings us to Scott Clark. And Mr. Scott

1 Clark started at Nuova in October of '07?

2 A That's correct.

3 Q And about how close to the acquisition was that?

4 A That was about six months.

5 Q Okay. And how far along was the UCS product design by
6 October of '07?

7 A That was pretty much done.

8 Q So could Mr. Clark have designed UCS given the timing of
9 when he joined?

10 A No.

11 Q Did Mr. Clark, in fact, design UCS?

12 A No.

13 Q Did he participate in any design meetings that you were
14 present at?

15 A No. That was not his job function.

16 Q Right. What was his role? What was Mr. Clark's job
17 function?

18 A He was responsible for services. So he was the guy who
19 was running services organization for Nuova and ended up
20 doing this at Cisco as well.

21 His job was to work with the customers and figure
22 out how to adapt the product to the environment because
23 every environment is different.

24 Q Egenera's lawyers -- I know you weren't here for this,
25 Mr. Dvorkin, earlier in the trial Egenera's lawyers argued

1 some documents Mr. Scott Clark brought with him from Egenera
2 to his new job, his new services job, were part of an effort
3 to copy the BladeFrame, and I want to ask you a question or
4 two about that.

5 Have you had a chance to see what those documents
6 looked like?

7 A Yes, in the course of this.

8 Q Yes, yes.

9 And did those documents have any technical
10 details?

11 A No, no technical details.

12 Q How far along was the design of UCS as of the dates on
13 those documents from Mr. Clark, from 2007 and later?

14 A The UCS was already architected, and like most of it was
15 implemented.

16 Q Did Mr. Clark ever get to decide what features get
17 implemented in UCS?

18 A No.

19 Q Has Mr. Clark ever architected part of UCS at Nuova?

20 A No.

21 Q And so did Mr. Clark design UCS?

22 A No.

23 Q I'm going to update our table to say Mr. Clark "did not
24 design UCS."

25 Okay. Does the modified slide, the modified

1 version of PDX-7-15 that we built, reflect your testimony,
2 Mr. Dvorkin?

3 A Yes, that's correct.

4 MR. MAGIC: Your Honor, I offer the modified slide
5 as a demonstrative.

6 THE COURT: So admitted.

7 MR. MAGIC: I'll just mark it DDX-8.7 for
8 identification.

9 **(Exhibit No. DDX-8.7 marked for identification.)**

10 Q Okay, Mr. Dvorkin, now that we have identified the
11 former employees of Egenera that actually ever came to
12 Nuova, and that they were not engineers, I want to look at a
13 statement that Egenera's lawyers made in the opening
14 statements of this case.

15 So we're going to go to the first day of the
16 trial, page 22, line 25 through page 23, line 1.

17 Okay, I'm showing you a statement that Egenera's
18 lawyer made when he was talking about the employees that
19 came over to Nuova. So he said, "Cisco also poached dozens
20 of engineers and employees from Egenera to help it copy
21 Egenera's product." Do you see that, that I've got on the
22 ELMO right now?

23 A Yes, I can see this.

24 Q Okay.

25 First of all, did Egenera's lawyer talk about Nuova

1 at all in this statement?

2 A No, it says "Cisco."

3 Q Okay, and which company built UCS, Nuova or Cisco?

4 A That was Nuova.

5 Q And counsel for Egenera referenced dozens of engineers;
6 do you see that?

7 A (No response.)

8 Q I have a question for you, Mr. Dvorkin.

9 Out of the five individuals that we just discussed,
10 right, that came to Nuova, were any of those engineers?

11 A No. They were customer-facing people, mostly services
12 and marketing, technical marketing.

13 Q Is Egenera's counsel's statement accurate?

14 A No.

15 Q All right.

16 So how many employees total did the company Nuova
17 have?

18 A About a couple of hundred by the time of the
19 acquisition.

20 Q And we just talked about the five that at some point had
21 worked at Egenera and came over. So if we take away those
22 five, how many employees did Nuova have that didn't come
23 from Nuova?

24 A Well, 195 approximately.

25 Q 195 approximately?

1 A Yes.

2 Q Now let's talk about the people that actually designed,
3 UCS.

4 MR. MAGIC: So can we, Mr. Herzka, go to slide
5 DDX-8.5. please.

6 Q So for my question for you to begin with on this slide,
7 Mr. Dvorkin, is who were the key people who determined the
8 design of UCS?

9 A Ed Bugnion, who previously was the founder and the
10 creator of what we know now as like server virtualization.

11 J.R. Rivers, who was responsible for a lot of data
12 center architects at Google.

13 Raghu Krishnamurthy, who was a distinguished
14 engineer from Veritas, a very smart guy?

15 And myself. I came from Xsigo. My background was
16 management systems and how to manage virtualization, virtual
17 IO specifically.

18 Q And do you recall explaining that Nuova and Cisco were
19 separate companies?

20 A They were completely separate companies.

21 Q During the time that Nuova was creating UCS, did anyone
22 who worked at Cisco actually design UCS?

23 A No.

24 Q Okay. Let me show you another statement from Egenera's
25 lawyers in the opening statement that they gave.

1 So I have on the screen right now a statement from
2 Day 1 of the trial, page 38, lines 22 to 23.

3 Egenera's lawyer said that "There was a free flow
4 of communication of information back and forth between Nuova
5 and Cisco." Do you see that part that I highlighted?

6 A Yes, I can see that.

7 Q Did Egenera's counsel refer to technical information
8 being passed between the two companies?

9 A There was no technical information being passed between
10 the companies. Most of --

11 Q Please, go ahead.

12 A Most of this was like, go to market, and marketing
13 related, how to position the product, and how to make sure
14 the sales force and the field organization are -- like they
15 can support this.

16 Q Yeah.

17 If Egenera's counsel was implying that there was
18 any free flow of technical information between Cisco and
19 Nuova about UCS, would that have been accurate?

20 A No.

21 Q Okay. Let's go back to the designer slide that we just
22 had up, DDX-8.5.

23 MR. MAGIC: Can we switch back, please.

24 Okay.

25 Q Mr. Dvorkin, did any of the four key designers come to

1 Nuova from Egenera?

2 A No.

3 Q Now, just to be clear, you were aware of the existence
4 of Egenera and its product in the market at the time you
5 built UCS, right?

6 A Yes, of course. Like it was a known company, and I,
7 like, specialize in the space. So I had to know as part of
8 my job.

9 Q Did you know about other competitors at the time you
10 built UCS?

11 A Of course.

12 Q Like IBM and HP?

13 A IBM, HP. There were probably a dozen at that time.

14 Q Was Nuova the first company you worked at that looked
15 around in the market to see what it's competitors were
16 doing?

17 A No. This is a normal practice.

18 Q Can you just explain that a little more?

19 A Well, when you build a new product, you need to
20 understand not only the customer requirements but what other
21 products are in the market, and how they satisfy the
22 requirements from the customers, and whether customers like
23 those products, and what they like, dislike, and what is the
24 general reception.

25 And we have to understand the market dynamics even

1 if you're an architect.

2 Q Mr. Dvorkin, Egenera is telling the jury that you and
3 your team copied Egenera's technology. Is that -- is
4 Egenera correct about that?

5 A No.

6 Q And how are you sure of that?

7 A Because I was there, and I was one of the co-architects.

8 Q I want to show you a slide that Egenera showed in its
9 opening statement.

10 MR. MAGIC: If we can just switch back.

11 Thank you. Thank you.

12 Q So we're looking at -- let me zoom in a little.

13 We're looking at -- from Egenera's opening
14 statement, PDX-1-26.

15 And Egenera showed this slide as supposed proof of
16 UCS being a copy of the BladeFrame.

17 So my first question for you, Mr. Dvorkin, is is
18 this picture a meaningful level of detail by which to judge
19 copying?

20 A Absolutely not. I would not even be able to tell what
21 the architecture is. This is a generic server rack. There
22 are a lot of those everywhere.

23 Q And the general design on the slide, is that like
24 servers stacked up and connected to each other with a switch
25 with software? Is that the general idea that we are seeing

1 on the slide?

2 A Yes.

3 Q How long has the basic design of a stack of servers
4 connected to a network switch with software been around in
5 the industry?

6 A God, since the mainframes.

7 Q When was that?

8 A Well, the mainframes were invented like in the '60's and
9 '70s. But like the modern architectures, the '90s people
10 stacked racks full of servers.

11 Q Now, I want to ask you a little more about this picture.

12 Egenera's -- let me put down a pen to just point at
13 something.

14 Egenera didn't talk about the component called
15 Nuova adaptor that's shown in the top right, and I want to
16 ask you a question about that.

17 Well, first of all, the adapter, that is also
18 called a NIC, right?

19 A Yes, a NIC, or a network interface card.

20 Q Did that NIC play a key role in UCS?

21 A Yes.

22 Q How so?

23 A This is the component where we perform most of the
24 virtualization functions, and that's where the programming
25 of the networking topology and the network identities took

1 place. So it was a very special component.

2 Q And instead of programming the CPU?

3 A Yes, that's correct.

4 Q And that's different from Egenera's patented design?

5 A That is very different.

6 Q Not a copy of Egenera's design?

7 A It's substantially different. It's not a copy.

8 Q How much engineering time at Nuova went into the
9 hardware and software that makes that special NIC work?

10 A Well, a lot of time, and a lot of effort. We built our
11 own chips. We built our own software. We built the
12 hardware. That was a very substantial engineering effort.

13 Management of this was a fairly complicated piece
14 of software as well.

15 Q Was there a special, what's called ASIC design?

16 A Yes, chips.

17 Q What's an ASIC?

18 A Yes.

19 ASIC is basically a custom-made chip that is built
20 to serve specific function.

21 Like in this case, there was a chip, or ASIC,
22 designed for being a NIC.

23 Q And did you spend years of your life designing and
24 developing the software that configures that NIC?

25 A Yes, that's correct.

1 Q How much innovation went into creating UCS?

2 A A lot. This was like one of the most innovative
3 products.

4 Q Did Nuova and Cisco get patents on UCS?

5 A Yes. Many, actually.

6 MR. MAGIC: Can we bring up PX-BQE, which I think
7 now is going to become JTX-562, unless somebody corrects me
8 on that.

9 **(Exhibit No. JTX-562 received in evidence.)**

10 Q Okay. Do you see on the screen PX-DQE, Mr. Dvorkin?

11 A Yes.

12 Q It's a slide deck basically that's titled "Unified
13 Computing System Pioneer Award Nomination," with a date of
14 2010 in the bottom corner. Do you see that?

15 A Yes.

16 Q What I just want to do is go to page 8 of PX-DQE.

17 And it's tilted "UCS patents." Page 8 says,
18 There's a total of 31 patents related to UCS in various
19 areas, like server management and server virtualization. Do
20 you see that?

21 A Yes.

22 Q Was that accurate to the best of your knowledge in 2010?

23 A Yes, absolutely. We did file a lot of patents, and we
24 did develop a lot of IT in the process of doing this.

25 MR. MAGIC: Let's also expand the last row of the

1 five patents, or applications, that are on PX-DQE.

2 I'm sorry. One above that.

3 There you go.

4 Q And for this one in particular, Mr. Dvorkin, there's a
5 sort of -- I'll call it a user name, "midvorki," under this
6 particular patent application. Is that you?

7 A Yes. "Dvorki's" me. This name still haunts me.

8 (Laughter.)

9 Q Are you an inventor on UCS patents?

10 A Yes.

11 Q What about Mr. Satinder Sethi that we've heard so much
12 about. Is he an inventor on any UCS patents?

13 A No.

14 MR. MAGIC: I think we can take down the exhibit.

15 Thank you.

16 Q Mr. Dvorkin, Egenera told the jury that Cisco bought a
17 BladeFrame from Egenera. Were you aware of that while you
18 were at Nuova building UCS?

19 A No, I was not aware of that.

20 Q Did you ever have access to this BladeFrame that Cisco
21 bought?

22 A No, I didn't.

23 Q To your knowledge, did anyone at Nuova have access to
24 that BladeFrame?

25 A Not that I know of.

1 Q Did anyone at Cisco ever provide you with information
2 about how the BladeFrame that Cisco bought worked?

3 A No.

4 Q And you were not here for this part of the trial,
5 Mr. Dvorkin, but Mr. Vern Brownell, he came in and
6 testified, the founder of Egenera, he came and testified,
7 that Egenera taught Cisco how to make UCS.

8 And so I just want to show you that particular
9 statement and ask you a question about that.

10 So Mr. Brownell was asked about a press release for
11 UCS, and it referenced -- it announced an architecture. It
12 referenced an architecture. And he was asked about that.

13 And he was asked -- it's in the highlighted lines
14 from transcript Day 1, page 116, line 12 through 16.

15 He was asked: "So that architecture that's
16 referenced in the very first line, who invented it"?

17 And he says: "This architecture we invented."

18 And he was asked: "Who taught it to Cisco"?

19 And he said: "We taught it to Cisco."

20 Mr. Dvorkin, have you ever heard of Mr. Vern
21 Brownell?

22 A No.

23 Q Did Mr. Vern Brownell, or anyone at Egenera, teach you
24 how to make UCS?

25 A No, he didn't.

1 Q Did you spend years of your life developing UCS based on
2 blueprints from Egenera?

3 A No.

4 Q Did you spend years of your life developing UCS based on
5 some source code from Egenera?

6 A No.

7 Q Did you work with your fellow architects across all
8 those design meetings at Nuova to make a copy of Egenera's
9 product?

10 A No. Absolutely not.

11 Q So, is Mr. Brownell actually correct in what he said?

12 A He's not.

13 MR. MAGIC: Okay. Let's go to JTX-263, please,
14 Mr. Herzka.

15 If we can switch off the ELMO.

16 Q Mr. Brownell also testified that Egenera presented a
17 PowerPoint slide deck about its product to Cisco in 2004.

18 And so, Mr. Dvorkin, I just want to show you some
19 of this slide deck and ask you a few questions.

20 So when you worked at Nuova, Mr. Dvorkin, had you
21 ever seen the slides that Egenera presented to Cisco in a
22 2004 meeting?

23 A No, I've never seen the slides.

24 Q You said no?

25 A No. I never seen the slides, no.

1 MR. MAGIC: Let's go to page 28, please.

2 Q On page 28 we see a design that Cisco -- I'm sorry --
3 Egenera talked about and claims it showed to Cisco in 2004.

4 Did you copy this design, Mr. Dvorkin?

5 A No.

6 Q Did you ever see this slide when you were working at
7 Nuova?

8 A No. This is the first time I see the slide.

9 Q Did you see -- well, do you see the boxes along the
10 bottom that say, "CPU" and "Memory"? Do you see that?

11 A Yes, I see them.

12 Q And these are supposed to be processing blades in
13 Egenera's design.

14 Is there a component missing from these processing
15 blades as they're represented here that's actually present
16 in UCS?

17 A They are missing the NIC, or the networking adapter.

18 Q Is the NIC the special component that you spent so much
19 time working on?

20 A Yes. All the magic was basically done in the NIC in the
21 UCS product.

22 Q So did you and your colleagues at Nuova copy Egenera's
23 approach to -- or Egenera's architecture?

24 A No.

25 Q Did you spend years of your life developing UCS based on

1 a PowerPoint presentation that Egenera gave to Cisco in
2 2004?

3 A No.

4 I wish it were possible to generate the product
5 from a PowerPoint, but...

6 MR. MAGIC: All right. We can take JTX-263 off the
7 screen.

8 Q Mr. Dvorkin, what did Nuova do to ensure its products
9 weren't actually using patented designs of others out there
10 in the industry?

11 A We had a dedicated person who did the patent search and
12 made sure that no IP is violated.

13 Q And who was the points person on that effort?

14 A The person was Silvano Gai.

15 Q Mr. Silvano Gai, was he a Nuova employee?

16 A Yes, he was a Nuova employee.

17 Q Was he an engineer?

18 A He was an engineer. In the past he was a "Cisco
19 Fellow," which is the highest engineering title in the
20 company.

21 Q And if Nuova -- through this process, if Nuova had found
22 that it was using anyone else's technology out there,
23 patented technology in the industry, is it something you
24 would have been made aware of?

25 A Absolutely.

1 Q Did that kind of thing ever happen?

2 A No, it did not happen.

3 MR. MAGIC: Okay. Let's go to slide DDX-8.6,
4 Please.

5 Q Let's talk a little bit about competition.

6 Speaking generally, how many competitors were out
7 there in the market at the time you were building UCS?

8 A About a dozen, probably more. There were a lot of
9 startups.

10 Q And are we showing some competitors on the slide that's
11 on the screen right now?

12 A Yes.

13 Q Okay. On the slide, on DDX-8.6, which of the
14 competitors or companies on this slide took the approach of
15 programming the NIC to establish the network topology?

16 A It was us, Nuova, and HP.

17 Q How do you know that HP was doing it that way?

18 A We learned about this from basically doing the market
19 research and due diligence and competitive research.

20 Q Why does a company do market competitive research or
21 competitive intelligence?

22 A Because you need to understand how your product stacks
23 up against the competition. It's very important.

24 Q And what do you learn in particular through competitive
25 intelligence about competitor features as opposed to

1 competitor implementation?

2 A Well, you can only learn about what's publicly available
3 and what customers can share about their experience. There
4 is very little understanding of the implementation.

5 Q Just remind us. What's the difference between
6 "features" and "implementation"?

7 A Features are things that are consumable by customers.
8 Customers can use the features. They rely on them for
9 operating and experiencing the product.

10 The design is how those features are implemented --
11 I mean, the implementation is how those features are
12 implemented, and this is implementation detail.

13 Q Is there anything wrong with doing competitive
14 intelligence?

15 A No, this is normal.

16 MR. MAGIC: Let's go back to the slide.

17 Q Are HP's and Nuova's products still around in the
18 marketplace?

19 A In some form, yes.

20 Q Okay. And now which competitors on the slide took the
21 approach of programming the CPU?

22 A Egenera and Xsigo.

23 Q How do you know that?

24 A Well, about Xsigo, I used to work there.

25 And Egenera, it's competitive intelligence.

1 Q The companies that took that approach, the CPU-based
2 approach, are they big players in the server market today?

3 A No, not anymore.

4 MR. MAGIC: All right. We're going to keep going
5 on competition, so let's look at a document, JTX-187.

6 Q Okay. What is JTX-187, Mr. Dvorkin?

7 A It's the engineering parity for system management.

8 Q Does JTX-187 also relate to UCS Manager?

9 A Yes.

10 Q And again, what does the title "PRD" stand for?

11 A "Product Requirements Document."

12 Q And if we look at the author section, the first row of
13 the author section, there's a "Mike" listed there. Is that
14 you?

15 A "Mike" is me.

16 Q What's the time frame of this PRD in JTX-187?

17 A So the initial draft was done in April of 2006, and it
18 was by May of 2006.

19 Q And then the latest version of the document?

20 A May 9, 2006.

21 Q There's another one down below, right?

22 A Oh, okay.

23 So there were other editions done. It's July 2006.

24 Q Does JTX-187 also include "competitive analysis"?

25 A Yes, it does.

1 MR. MAGIC: Let's go look that.

2 Can we go to page 14 of JTX-187, please.

3 Let's zoom in on the paragraph under 2.2.

4 Yeah, exactly.

5 Q So there's Section 2.2 "Competitive analysis/Feature
6 comparison."

7 Speaking generally, Mr. Dvorkin, what's the purpose
8 of this section of the PRD?

9 A It's the competitive analysis, where we compare features
10 between the products.

11 Q And in this particular instance, which two competitors
12 are being discussed?

13 A IBM's Director, and Egenera's PAN Manager.

14 Q And for each competitor, does the document explain some
15 similarities and some differences to UCS?

16 A Yes. That's correct.

17 Q So let's now look at the section on PAN Manager. That's
18 on the next page, page 15, Section 2.2.2.

19 MR. MAGIC: And Mr. Herzka, can you enlarge the
20 paragraph that starts, "Nuova's platform differs
21 significantly..." just that paragraph.

22 Thank you.

23 Q All right.

24 MR. MAGIC: Can we highlight the second sentence,
25 too, please?

1 Thank you.

2 Q Mr. Dvorkin, were there differences between the UCS in
3 terms of system management philosophy and features at the
4 time of this PRD?

5 A Yes, very significant.

6 Q So that's what I want to ask you a few questions about.

7 And so there's a few bullet points under this
8 paragraph, and I will have a question for you on each of
9 those bullet points.

10 MR. MAGIC: So can we go to the first bullet point,
11 Mr. Herzka.

12 There we go.

13 And can we highlight the "gateway to convert I/O" in
14 the first line.

15 Q So, Mr. Dvorkin, the first bullet point under the
16 differences section talks about "Egenera's model, and in
17 particular, the use of a gateway to convert I/O."

18 Do you see that part?

19 A Yes.

20 Q So what point of comparison was UCS -- was the document
21 making in terms of a comparison of UCS to Egenera's product?

22 A So this highlights Egenera relying on I/O gateway
23 approach for handling virtualization. So -- which means you
24 program the network topology and all of the network
25 identities in the operating system.

1 Q Okay, great.

2 Let's look now at the next point that the PRD makes
3 about differences.

4 So let's see. This is a short one. So let me just
5 ask you, Mr. Dvorkin, what point of comparison is being made
6 in this second bullet point about differences in the PRD?

7 A This section is talking about scalability, which means
8 how many servers each system can support.

9 Q And the PRD, who's winning on scalability, UCS or the
10 PAN Manager system?

11 A UCS, by a factor of two.

12 Q And just to be clear on the terminology here, we see the
13 second sentence refers to SAM and ServerArray. What are
14 those?

15 A ServerArray is the code name for the product until it
16 was actually branded as UCS.

17 Q And SAM, what was that?

18 A SAM was the ServerArray Manager, which later became
19 UCSM?

20 Q So the second sentence is referring to the scalability
21 of UCS?

22 A Yes, that's correct.

23 MR. MAGIC: Let's go on to the third bullet point,
24 and, yes, let's highlight the second sentence. Okay.

25 Q The second sentence says, "Egenera relies on low-level

1 agenting and drivers running on the server." And my
2 question for you is what does the PRD mean when it refers to
3 that approach by Egenera?

4 A It means that Egenera required running specialized
5 proprietary software within the operating system that
6 emulated the I/O functions for both Ethernet and fiber
7 channel. So it was a very specialized piece of software
8 that basically programmed the host as the CPU to handle
9 networking function.

10 Q How do you know that Egenera relied --

11 (Reporter interrupts.)

12 Q How do you know, Mr. Dvorkin, that Egenera's design
13 relied on low-level agents on the server?

14 A This was public knowledge. So through our competitive
15 intelligence we learn about this.

16 Q Did some customers express views about that kind of
17 architecture?

18 A Yes. They did not like that kind of architecture.

19 Q And instead of modifying the operating system, what does
20 JTX-187 in the third bullet point in the differences section
21 between Egenera and UCS, what does it say that Nuova did?
22 What was Nuova's approach?

23 A Nuova's approach was to program the information into the
24 specialized NICs that we built. So we programmed all of the
25 networking configuration for the host, including topology,

1 the identities into the NIC, or in the network.

2 Q And since this bullet point doesn't actually use the
3 word NIC, can you help us understand what part of the bullet
4 point is referencing the NIC in UCS?

5 A Menlo/Palo. "Menlo" and "Palo" were two different NICs,
6 and they were code names for them.

7 MR. MAGIC: We can take the document off the screen
8 now.

9 Q We are going to look at a different document now that
10 Egenera referred to because it has Mr. Sethi's name on it.

11 MR. MAGIC: So let's bring up JTX-201, please.

12 Q Okay. So we've got JTX-201 on the zero screen. It's
13 titled "SAM Product Requirements Document," and it has
14 Mr. Sethi's name on it.

15 Do you see all of that, Mr. Dvorkin?

16 A Yes.

17 Q Egenera implied that this document shows Mr. Sethi
18 designed UCS. Is there any truth to that allegation?

19 A No.

20 Q Do you see that JTX-201 is dated July of 2007 up top?

21 A Yes, I can see this.

22 Q By July of 2007, what was the state of the design of UCS
23 and UCS Manager, the software that configures UCS?

24 A The design was complete. The architecture was complete.
25 We actually had working software that was running with

1 generic servers with the emulated -- with the prototype of
2 the NIC.

3 Q Was that also true as of the earliest date on
4 Mr. Sethi's document, February of '07?

5 A Yes.

6 Q And how do you know that, Mr. Dvorkin?

7 A I was there.

8 Q Your role again, just to remind us?

9 A I was the chief architect and one of the main
10 implementors of UCS SAM or UCS Manager.

11 MR. MAGIC: Let's bring up JTX-187 in split screen,
12 please.

13 Q So JTX-187, that's the document that you coauthored,
14 right?

15 A Yes.

16 Q That's now on the right side and JTX-201 is on the left
17 side of our screen.

18 So let's look at the date on your document. How
19 does the date on your document compare to the date on
20 Mr. Sethi's PRD?

21 A My document preceded Santinder's document by over a
22 year.

23 Q Is there also a difference in the level of technical
24 detail in your document compared to Mr. Sethi's document
25 from a year later?

1 A My document is a technical architecture spec.

2 Santinder's document is basically customer
3 requirements and usability requirements and stuff that is
4 customer specific and customer facing.

5 Q So do the two PRDs, yours from 2006, Mr. Sethi's from
6 2007, do they serve different purposes despite both being
7 generally PRDs?

8 A They serve completely different purposes, yes.

9 Q Does your documents get into the architecture of UCS
10 Manager?

11 A My document is the architecture document for the UCS
12 Manager.

13 Q Let's take a quick look under the cover.

14 MR. MAGIC: Can we go to page 25 of JTX-187. Keep
15 it in split screen.

16 Yeah, let's call out the Figure 4, please.

17 Thank you.

18 Q So we're in a section of your PRD from 2006 called
19 "Software architecture" in the UCS Manager section.

20 Is Figure 4 that we have on the screen an
21 architecture diagram for UCS Manager as of 2006?

22 A Yes.

23 Q Did you create Figure 4?

24 A Yes. I actually remember drawing that. Poor choice of
25 colors.

1 (Laughter.)

2 Q Does your document from 2006 have an entire section on
3 the architecture of UCS Manager?

4 A Absolutely. That's an architectural document.

5 Q You also look at the document on left of the split
6 screen, Mr. Sethi's document, right? You've taken a look at
7 it, right?

8 A Yes.

9 Q Does it have anything like the level of technical
10 information about the architecture of UCS that's in your
11 PRD?

12 A No. It's mostly focusing on marketing.

13 Q So what's the overall purpose of Mr. Sethi's PRD from
14 2007?

15 A How the SAM, or UCS SAM, fits into the broader Nuova
16 strategy as a business. It included comparative landscape
17 and analyzes ecosystem, and there is a section for customer
18 requirements, specifically focusing on usability and
19 serviceability and things like this.

20 Q Okay. So just to help us understand that a little
21 better, sort of what's in Mr. Sethi's PRD, let's look under
22 the cover page and take a quick tour of the table of
23 contents and see what kind of, you know, topics are
24 discussed in this document.

25 MR. MAGIC: So thank you, Mr. Herzka.

1 Q We'll go section by section, hopefully not too slowly.

2 The first section's called "Abstract," and it's,
3 you know, got various sections, like "Project Description"
4 and "Implementation Phases."

5 Is that a blueprint for architecting UCS?

6 A No.

7 Q Okay.

8 MR. MAGIC: And let's continue on JTX-201 on the
9 left side of the screen to the next section.

10 Q It's called "Objectives." It has things like: "Project
11 Priorities, Pricing."

12 Is that a blueprint for architecting UCS?

13 A No. That's pure market-related stuff.

14 Q Let's go to "Positioning." It's the next section,
15 Section 3.

16 And that section talks about "Target Customers,
17 Value Proposition." Is that a blueprint for architecting
18 UCS?

19 A No, this is marketing it.

20 Q All right. We are on to the next section, Section 4, of
21 Mr. Sethi's document.

22 So "Functional Requirements," that's what this
23 one's called. It's about seven pages long.

24 In this section, you can see all the subsections
25 there, is there any UCS Manager architecture section here in

1 Mr. Sethi's 2007 document like you have in your 2006
2 document?

3 A No, absolutely not.

4 Q Let's go to the fifth section, "Customer and User
5 Success."

6 So this section has things like: "Software
7 Installation, Troubleshooting." Is this a blueprint for
8 architecting UCS?

9 A No. This is instructions for the customers, and how we
10 should, like, make those things simpler for consumption.

11 Q Let's go to the next section, sixth section of
12 Mr. Sethi's document, JTX-201.

13 So that's: "Reliability, Availability,
14 Serviceability. It also appears this section is about a
15 page long.

16 Is that a blueprint for architecting UCS?

17 A No.

18 Q Let's go to the eighth section.

19 Are competitive -- I'm sorry. Seventh section. I
20 misspoke.

21 "Compliance," is that a blueprint for architecting
22 UCS?

23 A No, it's not.

24 MR. MAGIC: Eighth section now, please.

25 Q "Competitive Analysis," and I think this one spills over

1 to the next page.

2 But is competitive analysis a blueprint for
3 architecting UCS?

4 A No, it's not. It's competitive analysis.

5 Q I think we are on to the last section now. Yes, "Market
6 Dynamics." And this talks about "Market Growth, Market
7 Trends." Is that a blueprint for architecting UCS?

8 A No. This is marketing.

9 Q So does Mr. Sethi's document make a meaningful design
10 contribution to UCS?

11 A No. He was a marketing guy.

12 MR. MAGIC: Okay. We can take down the photos --
13 or, sorry, the exhibits.

14 Q Okay. Mr. Dvorkin, is UCS a copy of Egenera's product?

15 A It's not.

16 Q And for designing UCS, what previous work experience led
17 you to avoid the approach of programming a CPU to establish
18 the network topology?

19 A My experience of Xsigo. I learn the hard way. I have
20 battle scars.

21 Q In that role at Xsigo, you actually did work on the
22 approach of programming the CPUs?

23 A Yes, unfortunately. It proved to be very difficult.

24 Q Is programming the UCS NIC to establish the network
25 topology the same as programming the UCS server CPU to

1 establish a network topology?

2 MR. SCHENKER: Objection. 702 --

3 THE COURT: I'm sorry. I didn't hear you.

4 MR. SCHENKER: 702.

5 MR. MAGIC: I'm asking him about the different
6 approaches and whether they provided the same design.

7 THE COURT: Under that understanding, overruled.

8 Q Mr. Dvorkin, does programming a UCS NIC to establish the
9 network topology, is it the same as programming the UCS
10 server CPU to establish the network topology?

11 A No, it's very different.

12 Q Different architecturally?

13 A It's completely different architecture, implementation,
14 and the user experience is different as well.

15 Q Is the NIC a different component in the server than the
16 CPU is?

17 A Yes, it's a completely different component.

18 Q Is programming -- so, you've worked on the two different
19 approaches at different times in your career, right?

20 A Yes, that's correct.

21 Q And are the -- is the programming the NIC approach an
22 equivalent from a -- like an engineering point of view to
23 programming the CPU approach?

24 A No, it's very different.

25 Q How can you tell that these two approaches are not.

1 engineering equivalents?

2 A Because one focuses on a completely different device
3 that has completely different functions. And Egenera's
4 approach is done within a host within the operating system,
5 the specialized software that emulates I/O functions.

6 Q Are there different benefits to the two approaches, so
7 programming the NIC to establish the topology versus the
8 other approach?

9 A There are significant benefits.

10 Q Can you give us an example or two?

11 A First of all, performance. Doing things in hardware is
12 significantly faster.

13 Q Is that the NIC approach?

14 I'm sorry to interrupt.

15 A That's NIC approach, yes, the approach utilized by UCS.

16 Q Okay.

17 A In addition, you have a wider array of operating systems
18 you can support. So it doesn't require any specialized
19 proprietary software that does unusual things to the server
20 I/O.

21 And the kind of side benefit of this, we have less
22 software, you have higher reliability, and higher
23 serviceability. So the customer does not have to put in
24 additional software into each server image.

25 Q And if you -- you've -- you have experience with the

1 CPU-based approach, right?

2 A Yes, at Xsigo. They were all very, very painful
3 memories.

4 Q And with the CPU-based approach, do you get those same
5 benefits?

6 A With a CPU-based approach, the challenge is that you
7 have an additional piece of software that is affecting the
8 performance of the server. It reduces the server's ability
9 and reliability.

10 So the customer now has to worry about yet another
11 piece of software running with an operating system on
12 server. Nobody wants that.

13 Q And after Egenera filed this lawsuit, you became aware
14 of their patent that they're asserting, right?

15 A Yes.

16 Q Did you take a look at the patent?

17 A Yes, I did.

18 Q And you're aware that Egenera's charging Cisco and the
19 people at Cisco with actually having a belief of
20 infringement and continuing to sell UCS? You're aware of
21 this charge that's being made?

22 A Yes, I am aware.

23 Q As the person who designed the management software for
24 UCS, do you have a belief that UCS infringes Egenera's
25 patent?

1 A Absolutely not.

2 MR. MAGIC: Thank you Mr. Dvorkin.

3 THE COURT: All right, cross-examination.

4 MR. SCHENKER: Thank you, your Honor.

5 **CROSS-EXAMINATION**

6 **BY MR. SCHENKER**

7 Q Mr. Dvorkin, do you own stock in Cisco?

8 A Do I own stock? Yes.

9 Q How much in stock and options have you received from
10 Cisco?

11 A From the Nuova acquisition --

12 Q From the Nuova acquisition.

13 A Because I sold other companies to Cisco afterwards. So
14 from --

15 Q In total?

16 A -- from the Nuova acquisition, I think it was about
17 four-and-a-half-million dollars.

18 Q And post Nuova acquisition?

19 A Post Nuova acquisition I left and I started another
20 company in 2012.

21 Q And you came back --

22 A I came back, yes.

23 Q And you got additional stock options from Cisco?

24 A After the acquisition I got -- yeah, I got some.

25 Q So how much are your options from Cisco worth now?

1 A Maybe 200K.

2 Q Now, you said you left in 2011.

3 You currently do not have any responsibilities for
4 UCS; is that true?

5 A I don't have any current responsibility for UCS.

6 Q And, in fact, you have not had any responsibilities for
7 UCS since 2011; is that right?

8 A Yes. Since the end of 2011, yes.

9 Q Now, just now at the end of your examination you told
10 Cisco's attorney that you formed a belief in noninfringement
11 after the lawsuit was filed; is that right?

12 A That's correct.

13 Q Now, you first spent time reading the '430 Patent and
14 considering that in 2018; is that right?

15 A Yes, during the depositions.

16 Q And you understand this lawsuit was filed in 2016,
17 right?

18 A Yes.

19 Q So you had not formed any opinions on noninfringement
20 prior to 2018, right?

21 A Well, I understood the architecture of UCS, but, yes.

22 Q And at the time that you formed your opinion -- at the
23 time that you originally formed your opinion, you had not
24 reviewed the Court's Markman order; isn't that right?

25 A I did not.

1 Q And at the time you formed your opinion, you had not
2 reviewed the -- what's called the prosecution history, the
3 record of the back and forth between Egenera and the Patent
4 Office, isn't that right?

5 A That's correct.

6 Q And at the time you formed your opinions, you had not
7 actually revalued any of Egenera's infringement contentions,
8 the explanation for how they contend that Cisco infringed;
9 isn't that right?

10 A That's correct.

11 Q Now, you understand, sir, that the '430 Patent issued in
12 2007; isn't that right?

13 A Yes.

14 Q And when Cisco publicly launched in 2009, at that point
15 you haven't formed any opinion of noninfringement, and from
16 no point between 2009 to 2017 or 2018, you had no opinion on
17 noninfringement; is that correct?

18 A Cisco did patent searches and did studies of whatever
19 patent's filed. That was done by Silvano Gai.

20 Q Excuse me, sir.

21 The question is whether you formed a belief in
22 noninfringement between 2009 and 2018?

23 A That's correct.

24 Q Sorry?

25 It's correct that you did not?

1 A I did not.

2 Q And just to remember, you did say that since 2011 you've
3 had no responsibility over UCS?

4 A I have no responsibility over UCS, but I was aware of
5 the features and architecture.

6 Q And when you formed your opinion, you did not inform
7 anyone -- when you formed your opinion of noninfringement,
8 you, in fact, did not tell anyone at Cisco about your
9 opinion, isn't that correct?

10 A That's correct.

11 Q Thank you.

12 Mr. Dvorkin, you didn't work for Cisco or Egenera
13 prior to joining Nuova in 2006, correct?

14 A No, I didn't.

15 Q And, in fact, because you did not work for either of
16 those companies, you were not present at any meetings
17 between Egenera and Cisco; is that right?

18 A I was not aware of those meetings. I could not because
19 I was --

20 Q You're not even aware those meetings happened?

21 A Yes.

22 Q So the jury heard a lot of testimony over the last week
23 about technical meetings between Egenera and Cisco
24 describing Egenera's technology, and you have no personal
25 knowledge about that because, as you just said, you weren't

1 even aware of those meetings?

2 A That's correct.

3 Q And you have no idea, and you can't tell the jury, and
4 you have no idea, what was discussed at those meetings and
5 how much information Egenera provided at those meetings?

6 A Yes, that's correct.

7 Q And you have no idea what kind of questions Cisco's
8 attendees at the meetings were asking and what sort of
9 technical information Egenera passed along to Cisco; isn't
10 that right?

11 A I have idea, yes.

12 Q Do you know who Ammar Hanafi is?

13 A No.

14 Q No, you never heard that name.

15 So you're not aware -- and the jury's heard about
16 Ammar Hanafi who was somebody who reported to Mario Mazzola
17 and Luca Cafiero.

18 You do know Mario Mazzola and Luca Cafiero,
19 correct?

20 A Yes, I worked with them.

21 Q Yes, you worked with them?

22 A Yes.

23 Q And the jury heard testimony about a Ammar Hanafi --
24 heard testimony from Ammar Hanafi about the fact that he did
25 report to Mario Mazzola and Luca, as he said, and he worked

1 closely with them in determining business and new businesses
2 for Cisco to move into.

3 You have no knowledge about those meetings and
4 those ventures?

5 A I have no knowledge of those meetings.

6 Q And you have no knowledge of what information Ammar
7 Hanafi passed to Mr. Mazzola and Mr. Cafiero about these
8 meetings?

9 A I have no information.

10 Q But Mr. Mazzola and Mr. Cafiero are two of the founders
11 of Nuova; is that correct?

12 A They were two of the cofounders, yes.

13 Q Mr. Mazzola -- sorry, Mr. Dvorkin. I apologize.

14 Cisco's attorney showed you a presentation from
15 Egenera.

16 Sitting on the stand here today, was that the first
17 time you saw that presentation?

18 A I saw this before, just like recently in the last couple
19 of days.

20 Q So you saw it in the last couple of days?

21 A Yes.

22 Q And you are aware that that presentation was provided to
23 Cisco back in 2004, are you not?

24 A I am now. But I was not at the time, of course. I was
25 not there.

1 Q And you are aware now that, as part of providing that
2 presentation, Egenera provided additional conversations, had
3 whiteboard discussions, and technical deep dives into the
4 technology along with that, are you?

5 A I'm not aware of that.

6 Q You're not aware of that, okay.

7 Now, obviously you seem to disagree that there was
8 any copying or that there was anything going on here, but
9 isn't it true that you don't think so, but you can't say
10 with certainty whether or not Egenera came up with any of
11 the technology used in UCS first; isn't that right?

12 A UCS's approach was drastically different technology.

13 Q Sir, that's not my question.

14 My question is, you don't think so, but you cannot
15 say with certainty whether or not Egenera came up with any
16 of the technology used in UCS first; isn't that right?

17 A I can say with pretty high certainty that UCS's approach
18 was drastically different.

19 Q Sir, you've had your deposition taken in this case?

20 A Yes.

21 Q That was back in March of 2018?

22 A Yes.

23 Q And you understand that you were testifying under oath
24 at that time?

25 A Yes.

1 Q And you were truthful in your deposition?

2 A Yes.

3 Q And you understand it's important to be truthful?

4 A Yes.

5 Q And you understand that you were testifying at your
6 deposition as though you were sitting in front of this judge
7 and this jury testifying --

8 A Yes, I understand it.

9 Q And you told the truth in your deposition; isn't that
10 correct?

11 A Yes.

12 MR. SCHENKER: Can we bring up Mr. Dvorkin's
13 deposition, page 165.

14 Now, you were asked: "QUESTION: You don't know for
15 certainty whether or not Egenera came up with any of the
16 technology used in UCS first; isn't that right?

17 "ANSWER: I simply can't say, right. I don't think
18 it's the case, but...

19 "QUESTION: But you don't know for sure?

20 "ANSWER: I don't know."

21 This was your testimony, was it not?

22 A That's correct.

23 MR. MAGIC: Your Honor, may I just read an
24 additional short passage for context?

25 MR. SCHENKER: Your Honor, he'll have the

1 opportunity during his redirect?

2 THE COURT: No, let's do it now.

3 MR. MAGIC: For context, your Honor, and for the
4 jury.

5 Page 16 -- I'm sorry.

6 Page 163 of the deposition, line 16 through 25, and on
7 to page 164, line 1.

8 Okay. Mr. Dvorkin was asked: "Do you know one way or
9 the other whether the technology that was developed by Nuova
10 to be used in California was developed first by Nuova as
11 opposed to someone else developing first, like Egenera?"

12 And he says: "I think it was. I think it was done by
13 Nuova in a very unique way. I had never seen any
14 implementation that would lead me to believe otherwise."

15 Thank you.

16 THE COURT: Okay. Back to cross.

17 **BY MR. SCHENKER**

18 Q Now, in fact, as your lawyer just read to you that
19 additional part, you said you think so.

20 Mr. Dvorkin, you were not personally involved in
21 the initial founding of Nuova, isn't that correct?

22 A No.

23 Q You joined Nuova -- was it March or April of 2006?

24 A Spring of 2006. I don't remember the exact month. It's
25 been a while.

1 Q Somewhere around that time, March or April?

2 A Yes.

3 Q You have no firsthand knowledge about how Nuova was
4 started or what Nuova's initial goals were, do you?
5 Firsthand knowledge, sir.

6 A Firsthand? Only from what Prem and the founders told
7 me.

8 Q You have no firsthand knowledge then. Thank you.

9 And, in fact, Nuova's founders, as Mr. Jain and
10 others, had some initial product development decisions
11 before you arrived; isn't that correct?

12 A Yes, that's correct.

13 Q Okay.

14 I mean the company existed for six months before
15 you were there. They had ideas.

16 And, in fact, you know that they made decisions
17 about particular components to include in the system before
18 you arrived at Nuova; isn't that correct?

19 A Yes.

20 MR. SCHENKER: Can we bring up JTX-187 again.

21 Let's go to page 5.

22 Q This is the products requirements document you were just
23 testifying about?

24 A Yes.

25 Q Now, we see here in this term [sic] there's "Nuova

1 Terms," right? Do you see this table, "Nuova Terms"?

2 A Yes.

3 Q And first term on the list was "control node"?

4 A Yes.

5 Q And that's what ultimately became the fabric
6 interconnect; isn't that correct?

7 A Yes.

8 Q And control node, that predated you in UCS; isn't that
9 correct?

10 A Yes.

11 Q Okay.

12 And "ServerArray Manager," that's ultimately what
13 became UCS Manager?

14 A Yes.

15 Q That predated you and UCS as well, right?

16 A Just in the name.

17 Q "ServerArray," that predated you as well?

18 A Yes.

19 Q And the "Processing Node" in the system, that predated
20 you as well?

21 A Yes.

22 Q So these underlying architectural elements in the
23 system, that all predated your joining Nuova; isn't that
24 correct?

25 A That's correct.

1 Q So the implementation of how they were implemented, you
2 were part of that because you were the chief architect of
3 UCS Manager. But the ideas of putting the entire thing
4 together, and the components of the control node, the
5 ServerArray Manager, the ServerArray, the processing node,
6 these pieces, these all predated you in your joining Nuova;
7 isn't that correct?

8 A That's correct.

9 Q Thank you.

10 MR. SCHENKER: You can take that down.

11 Q Now, to the best of your knowledge, UCS was Cisco's
12 first venture into the server market; isn't that correct?

13 A I think there was a previous venture into the market,
14 but this was like the one that's taken to the completion.

15 Q Prior to the release of UCS, Cisco had never sold or
16 marketed servers; is that correct?

17 A That's correct.

18 Q And, in fact, UCS was their first venture into the
19 server product line; isn't that correct, to the best of your
20 knowledge?

21 A As a business, yes. To the best of my knowledge, yes.

22 Q So in 2005 when Nuova was formed, Cisco was not in the
23 server market yet, that's correct?

24 A They were not.

25 Q Okay.

1 Now, I mentioned the 2004 meetings between Egenera
2 and Cisco.

3 In April of 2004 at those meetings, just to be
4 sure, Cisco was not yet in the server market?

5 A It was not in the server market.

6 Q But Egenera was in the server market, in fact, right?

7 A Yes.

8 Q Egenera was known in the server market at the time?

9 A Yes, it was one of the players, yes.

10 Q Now, you identified again the founders. We talked about
11 some of them today, Mr. Mazzola, Soni Jiandani, Prem Jain
12 and Luca Cafiero, correct?

13 A Yes.

14 Q You put their faces all up on a screen; is that right?

15 A That's correct.

16 MR. SCHENKER: Can I get the ELMO, please.

17 Can we put this up.

18 Q We had Mario Mazzola, Prem Jain, Luca Cafiero, Soni
19 Jiandani. Now, they all came from Cisco; isn't that right?

20 A Yes, that's correct.

21 Q You often referred to them as "MPLS"?

22 A Yes.

23 Q They're known in the industry as "MPLS"?

24 A Yes, that is correct.

25 Q Now, yesterday you highlighted for the jury the years of

1 experience that all four of these founders had, right?

2 A Yes.

3 Q You said they had years of experience.

4 But in fact, sir, you know it to be true that
5 before that -- for somebody like UCS in that market, these
6 four founders had zero experience in the market; isn't that
7 true?

8 A That's correct.

9 Q They had zero experience --

10 A This is why they had Ed Bugnion and Tom Lyon as
11 cofounders.

12 Q Okay. But this is also why they had to go out and talk
13 to customers and find out what they should build; isn't that
14 right?

15 A This is a normal thing when you start a company, yes.
16 You do market research before you get into the new business.

17 Q Okay.

18 And so they were talking to customers before the
19 launch of UCS, and they were out there with customers and
20 finding out what customers wanted and what was worth
21 building, what's not worth building; isn't that right?

22 A That's correct, yes.

23 Q And that's --

24 A You --

25 Q And that's because these four founders had zero

1 experience? These four founders who came from Cisco had
2 zeros experience in the server market?

3 A That's correct.

4 Q Thank you.

5 And when they are talking to customers, would you
6 involve sales reps, service managers, people who deal with
7 customers?

8 A Yes, often times you do.

9 Q You'd expect that people like that are involved in the
10 conversations of what is it that customers want to figure
11 out, What should we actually build?

12 A Because you need to learn about -- you expect that you
13 deserve experience, the features, and like what customer
14 generally wants. If you want to build a new product, you
15 need to build for customer. You cannot build in a vacuum.

16 Q UCS was built for customers?

17 A Yes.

18 Q And so you needed to know what customers wanted --

19 A Yes.

20 Q -- and what the sales team that worked with the
21 customers were saying about that?

22 A That is correct.

23 Q Thank you.

24 Now, you did tell us before that at the time Nuova
25 started Egenera was already well known.

1 And, in fact, you would have -- you would agree
2 that people familiar with the industry landscape in 2006
3 would have known what PAN manager was?

4 A Yes.

5 Q And they would have known Egenera?

6 A Yes.

7 Q And, in fact, at that time customers were talking about
8 PAN Manager and Egenera, weren't they?

9 A Yes.

10 Q And at that time, you know -- you know, in fact, that
11 Egenera was getting a lot of press in the industry for its
12 products; isn't that right?

13 A Yes, in technical press. Yes, it was covered.

14 Q Now, prior to the launch of UCS in 2009 you would agree
15 that UCS was still somewhat under development, features were
16 still being added?

17 A Yes.

18 Q You were still working on portions of that?

19 A Like things were being developed, architect was in
20 place.

21 Q That's right.

22 I mean the architecture, we saw the ServerArray,
23 the processing node, the control node, that was all there
24 even before you joined, but the implementation, how the UCS
25 Manager was developed, that was still going on even as late

1 as right before the launch in 2009?

2 A Yes.

3 Q Thank you.

4 A It takes a while to build these products.

5 Q Now, yesterday and this morning your attorney was
6 walking you through a list of ex-Egenera employees who came
7 to Cisco or to Nuova and crossing them off the list, right?

8 We sat there. We saw them crossing names off the
9 list. This is not important. That person is not important.

10 Because, as your lawyer put it -- or as Cisco's
11 lawyer put it, these people all came too late in the game.
12 They all came after you had developed the product?

13 A Yes.

14 Q Now, you agree that just because you came to Nuova after
15 the initial ideas were formed, you were still part of the
16 development of it?

17 A Yes, but I was working as the chief architect for a very
18 significant component of the system.

19 They were marketing and services people.

20 Q Thank you.

21 They were marketing and services people who were
22 working with customers; is that right?

23 A Yes.

24 Q In fact, if we look at some of them, Andrey Kvasyuk, he
25 joined in January 2009 before the launch; is that right?

1 A Yes, that's correct.

2 Q He was a solutions architect?

3 A Yes.

4 Q And, in fact, you know Andrey Kvasyuk, don't you?

5 A Yes.

6 Q You do?

7 A Yes. Of course.

8 Q And Anuja Singh joined before it launched?

9 A Appears to be, yes.

10 Q March of 2009 was before the launch?

11 A Yes.

12 Q And you talked about Blaine Lincoln?

13 A Yes.

14 Q Bob Richardson joined before the launch?

15 A Yes.

16 Q And Chuck Pease, he joined before the launch?

17 A Yes.

18 Q Elias Risorto, he joined before the launch?

19 A That appears to be the case, yes.

20 Q Now, we can keep going down this list, obviously.

21 Jason Shaw, technical marketing engineer, I think
22 you mentioned him?

23 A Yes, we talked about him.

24 Q You acknowledge that your attorney was crossing names
25 off the list of people who did joined Cisco before the

1 launch of UCS when it was still somewhat under development;
2 is that correct?

3 A The technology was developed.

4 Q Sorry. You're right.

5 The underlying architecture, like the ServerArray
6 and the control node was there.

7 (Simultaneous conversation.)

8 A A lot of the code was in and, like normal product, it
9 goes through a lot of testing, rigorous testing, bugs are
10 being fixed. This is normal product development.

11 Q And part of that is knowing what the customers want and
12 having the people who are talking to the customers giving
13 you feedback?

14 A (No response.)

15 MR. SCHENKER: Now, can we take a look at JTX-518,
16 please.

17 Sorry. I think we just looked at 518.

18 Can we bring up JTX-511.

19 Q Now, I understand you don't think that any of the
20 employees had much impact, or the ex-Egenera employees had
21 much to do with UCS, but, in fact, they were giving you
22 suggestions on what to include in the product; isn't that
23 correct?

24 A So they would --

25 Q Sir --

1 A They would provide customer requirements and feedback
2 from the field.

3 Q Thank you.

4 MR. SCHENKER: Can we go down to page -- the next
5 page. Keep going to the last. Okay.

6 Q So this is an email from Andrey Kvasyuk. You said you
7 knew him.

8 And you see here in the last paragraph, "I can
9 prepare specs and submit to the Brian Swartz and Mike
10 Dvorkin. Based on my previous conversations with Mike, it
11 can be easily (let's say relatively easily) implemented."

12 Mike Dvorkin, that's you; is that right?

13 A Yes, that is me.

14 And Brian Swartz was product manager, generally
15 field requirements that fell into the product management
16 organization.

17 Q And you are not going to look at this jury here today
18 and deny the fact that you had these conversations with
19 Andrey Kvasyuk, are you?

20 A Of course I talked to him, yes.

21 Q Now, another one of the ex-Egenera employees that was at
22 Nuova that you discussed at length today was Satinder Sethi;
23 is that right?

24 A Yes.

25 Q Now, you know that Mr. Sethi worked for a long time with

1 UCS and even at Cisco continued for a long time; is that
2 right?

3 A Yes.

4 Q And, in fact, Mr. Sethi worked with Mr. Jayakrishnan,
5 Cisco's corporate representative that's sitting at the table
6 here and that's been here this entire trial. Mr. Sethi
7 worked close with him. You know that, don't you?

8 A Yes.

9 Q And you're aware that actually at one point Mr. Sethi
10 was Mr. Jayakrishnan's boss, correct?

11 A That I don't remember, honestly.

12 Q Would you agree that Mr. Sethi was instrumental in the
13 design of -- sorry.

14 Would you agree that Mr. Sethi was instrumental in
15 UCS?

16 A He was a key person in the marketing organization.

17 Q So you would agree that he was instrumental to the
18 success of UCS?

19 A Yes.

20 Q Thank you.

21 MR. SCHENKER: I pass the witness, your Honor.

22 THE COURT: Anything further?

23 MR. MAGIC: Yes, your Honor. Just a few things.

24

25

REDIRECT EXAMINATION

BY MR. MAGIC

Q Hello, Mr. Dvorkin?

A Hello again.

Q Mr. Dvorkin, you were asked some questions about beliefs of noninfringement before 2018 by Egenera's lawyer. Do you recall that questioning?

A Yes.

Q Okay.

Did you even know about Egenera's '430 Patent before 2018?

A No.

Q And counsel asked you whether you know the details of the meetings between Egenera and Cisco. Do you recall those questions?

A Yes, I remember those.

Q Now -- and you said you didn't have the personal knowledge of those meetings?

A Of course. I was not there.

Q But you designed UCS Manager, right?

A Yes, that's correct.

Q And you know how it was designed, right?

A Yes, I do know how it's designed.

Q And you know who designed it?

A Yes.

1 Q And that was you and your team?

2 A That was me and my team, yes.

3 Q So did you use any information from those meetings that
4 you didn't even attend when you designed UCS?

5 A No.

6 Q And counsel for Egenera also mentioned someone named
7 Ammar Hanafi. Do you recall that question?

8 A Yes.

9 Q Was there a Mr. Ammar Hanafi Who gave you any
10 information about how to design UCS?

11 A No.

12 Q Was there a Mr. Ammar Hanafi who gave you information
13 about Egenera's product or any meeting?

14 A No.

15 Q Was there any Ammar Hanafi in any design meeting that
16 you ever attended at Nuova?

17 A No. Like, I have no idea who this is, honestly.

18 Q Counsel for Egenera asked you -- also asked you about a
19 few terms, like control node, ServerArray, processing node.
20 Do you remember those questions?

21 A Yes.

22 Q And whether those terms existed before your arrival at
23 Nuova, right?

24 A Yes. They existed before Nuova. They're common
25 industry terms.

1 Q But you were the architect of UCS Manager, right?

2 A Yes.

3 Q Was UCS Manager architected before you arrived?

4 A No.

5 Q Did the development, and creation, construction of the
6 NIC happen after you arrived?

7 A The idea to have a NIC and the sort of feature of what
8 it would do. Not the implementation and architecture and
9 design of it.

10 Q You were the instrumental person in the software that
11 managed the NIC and the team that helped bring that NIC into
12 existence?

13 A Yes, and I also handled the virtualization part for it.

14 Q And you were the one that architected the software that
15 programmed the network on the NIC?

16 A Yes, that's correct.

17 Q Had that been done before you got there at Nuova?

18 A No.

19 Q And even if those words, those terms that counsel showed
20 you, existed before you arrived at Nuova, do those words
21 tell you how to architect a product?

22 A No. This is just general names.

23 Q The architecture was designed by you, J.R. Rivers, Ed
24 Bugnion and Raghu Krishnamurthy?

25 A Yes.

1 Q Egenera's counsel also asked you whether the -- some of
2 the founders who came from Cisco had any experience in
3 servers, right? Do you remember those questions?

4 A Yes.

5 Q UCS involves a lot more than servers, right?

6 A There is networking. There is network (unintelligible)
7 NIC. There is management software. Those are all
8 substantial pieces.

9 MR. MAGIC: I want to put JTX-518 on the ELMO. If
10 we could have the ELMO, please.

11 Q You were asked about a few individuals from JTX-518 as
12 well. Do you recall Egenera's counsel asking you about
13 that?

14 A Yes.

15 Q I just want to clear the air on just one thing because
16 he asked you about several individuals who joined Cisco in
17 2009. Do you recall those questions?

18 A Yes.

19 Q But he also asked you about this person Chuck Pease with
20 a date of 2005.

21 Do you recall that he asked you about this person
22 too?

23 A Yes.

24 Q That person wasn't actually ever at Nuova. He was at
25 Cisco, right?

1 A Yes.

2 Q As we can see from the identification of "Cisco" and not
3 "both" on the interrogatory response, right?

4 A Yes.

5 MR. MAGIC: Can we have JTX-511 on the screen too.

6 Q I'm sorry, just going very briefly back to those terms,
7 processing node, control node, those were around even before
8 Egenera existed, right?

9 A Right, those are pretty standard terms in the industry.

10 Q Now, counsel asked you a couple of questions about this
11 document, JTX-511.

12 So I have two questions for you.

13 MR. MAGIC: If we can look at that -- okay. We've
14 got both pages on the screen, I take it.

15 Q Counsel asked you about the last paragraph of the email,
16 that somebody could submit specs to you about a feature,
17 right?

18 A Yes.

19 Q Does that mean that the feature gets implemented?

20 A No.

21 Q Is that up to you and the other architects?

22 A It's between product management, the architects and the
23 software organization leadership.

24 MR. MAGIC: Let's go to the date on this email.

25 Q The email is from November 2009. Do you see that?

1 A Yes.

2 Q Was UCS already designed by that time?

3 A Yes. And it was already being marketed.

4 MR. MAGIC: We can take that off the screen.

5 Q And then finally counsel for Egenera asked you about how
6 well you were compensated for, you know, the Nuova
7 acquisition and joining Cisco.

8 And, Mr. Dvorkin, were you well compensated because
9 UCS was an innovative, important product?

10 A Yes.

11 MR. MAGIC: No further questions. Thank you.

12 THE COURT: Anything further?

13 **RECROSS-EXAMINATION**

14 **BY MR. SCHENKER**

15 Q Now, just to be clear, Mr. Dvorkin, "control node,
16 ServerArray Manager, processing node," those were more than
17 just terms before you got there. Those were components of
18 the system that were intended. That's what you testified on
19 cross-examination?

20 A These were industry standards terms that we used.

21 Q Okay.

22 Just looking again at JTX-187. That's in a table
23 that says "Nuova terms"; is that correct?

24 A Yes.

25 Q And then there is a separate table that says "Industry

1 Terms"; is that correct?

2 A Yes, yes, standard components of servers, but --

3 Q There's a separate table, sir, that says "industry
4 terms"; is there not?

5 A Yes.

6 Q Now, one final question. Do you know whether the
7 Egenera system had network interface cards?

8 A They had the Giganet.

9 Q They did have NICs?

10 A But it was not a NICs.

11 Q Sir --

12 A All of the configuration of the I/O was done in the host
13 in the operating system.

14 Q Sir, you know how -- exactly how the internal operation
15 of the Egenera products work?

16 A But I do understand one thing. They used a piece of
17 software in the host, and that makes a critical difference.

18 Q Sir, do you have personal knowledge on how Egenera's
19 BladeFrame system was implemented?

20 A No. I have no idea about implementation, but I
21 understand the components.

22 MR. SCHENKER: No further questions, your Honor.

23 THE COURT: Thank you very much, Mr. Dvorkin. We
24 appreciate your testimony.

25 (Witness excused.)

1 THE COURT: Next witness please.

2 MR. DESMARAIS: Thank you, your honor --

3 Cisco calls as its next witness Mr. Satinder Sethi by
4 deposition.

5 He formerly worked at Egenera in sales and then went to
6 Nuova in marketing.

7 The deposition time is four minutes and forty-four
8 seconds for Cisco, and there are no counters by Egenera.

9 THE COURT: Very well.

10 (Videotape deposition of Satinder Sethi played.)

11 Q. Mr. Sethi, could you please introduce yourself.

12 A. Sure. My name is Satinder Sethi. I'm based out of
13 Virginia. I did my undergraduate in electric -- in
14 electronics and Communications, my master's in electrical
15 engineering, and have been in the IT field, specifically
16 data center, for the last 22 years.

17 Q. Where do you currently work today, Mr. Sethi?

18 A. I am at IBM.

19 Q. And at some point in the past you worked for
20 Egenera; right?

21 A. That's right.

22 Q. What was your job title at Egenera?

23 A. I was -- I initially started as a services
24 engineer, then I was moved over to a sales engineer, and
25 then I led the sales engineering team for Northeast out of

1 New York.

2 Q. And what were your job responsibilities general at
3 Egenera in the sales group?

4 A. Sure. My job responsibility was to support our
5 customers from a pre-sales engagement perspective. So I got
6 attached to sales teams, and sales teams would take me in to
7 go talk to customers and help them with understanding the
8 Egenera product, and then help with any kind of demos or
9 proof of concept as part of the sales cycle.

10 Q. At some point you came to work at Nuova; right?

11 A. That's correct.

12 Q. I first want to clear the air on something. Did you
13 ever take any confidential information from Egenera?

14 A. No, I did not take any confidential information from
15 Egenera.

16 Q. What was your job title at Nuova?

17 A. I was hired as a senior director for technical
18 marketing engineering. Later on, my role evolved to add
19 solutions as part of it, and then down the road several
20 years later as product management as well.

21 Q. Could you explain at a high level what your job
22 responsibilities were when you were at Nuova? Not Cisco, but
23 Nuova.

24 A. Correct. So at Nuova, as a technical marketing
25 engineer, there were largely two functions. One was to work

1 with the customers to understand their data center
2 requirements, how they deployed technology, what their pain
3 points were. And the second was to help the internal teams
4 understand those requirements and then help customers adopt
5 that technology that we were building. So primarily you can
6 think of an interface between the customers and our
7 development and product management teams, where we were
8 helping them with requirements and helping customers adopt
9 the technology.

10 Q. What was your actual job title at Cisco after Cisco
11 acquired Nuova?

12 A. It was senior director of technical marketing
13 engineering and solutions engineering.

14 Q. And so why was the word "engineering" in your title
15 at all at Cisco?

16 A. So as part of engaging with customers and helping
17 them understand and deploy, you know, Cisco products, it was
18 considered more of an engineering role as opposed to the
19 product management and operations role. So as much as the
20 role was not desired or required to do any kind of
21 development work on the product itself, the customer
22 engagement piece was a bit technical in the context of
23 architecture, so that's why it's called technical marketing
24 engineering. And then for solutions, once again, the role
25 came in after the product was developed. So we would take

1 the product, UCS, that was already done, finished product,
2 then we would bring the partners in, and at that point we
3 would make sure the interoperability between our ecosystem
4 partners and UCS existed. And once again, it was labeled as
5 a solutions engineering role, because there was some level
6 of interoperability testing and benchmarking with it.

7 Q. Well, now what direct product architecture work did
8 you ever do on UCS?

9 A. So --

10 Q. Yourself.

11 A. I was not responsible for the architecture of the
12 product.

13 Q. What direct software programming work have you ever
14 done on UCS?

15 A. I was not responsible for developing any kind of
16 software for the product.

17 Q. And what direct hardware design have you ever done
18 on UCS, yourself?

19 A. I was not responsible for the hardware design of the
20 product.

21 Q. What companies did Cisco consider to be its main
22 competitors for UCS at the time it launched UCS in 2009?

23 A. Primarily HP and IBM, and to some extent Dell, as
24 Dell had some presence in the blade server market. But
25 mostly, it was HP and IBM.

1 Q. How often did Egenera come up in your experience
2 with customers of UCS?

3 A. Very, very infrequently.

4 MR. DESMARAIS: Thank you, your Honor.

5 Cisco recalls as its next witness Mr. Jayakrishnan, the
6 head of UCS at Cisco.

7 THE COURT: Very well.

8 MR. DESMARAIS: And my colleague, Micheal Rhodes,
9 will conduct the direct examination.

10 THE CLERK: Please raise your right hand.

11 **BHASKAR JAYAKRISHNAN, sworn,**

12 THE CLERK: Thank you. You may be seated. Please
13 reintroduce yourself, spelling your last name for the
14 record.

15 THE WITNESS: I am Bhaskar Jayakrishnan. The last
16 name. J-A-Y-A-K-R-I-S-H-N-A-N.

17 **DIRECT EXAMINATION**

18 **BY MR. RHODES**

19 Q Welcome back, Mr. Jayakrishnan.

20 A Glad to be back.

21 Q So during this trial, Egenera and Cisco have been
22 vigorously discussing whether or not USC programming happens
23 on the CPU or the network interface card, the NIC.

24 Can you answer that question for us?

25 A In UCS we program the NIC.

1 Q We'll get back to that later, but first I wanted to let
2 you introduce Cisco and yourself to the jury.

3 I'm going to bring up some binders with the DEX-4.

4 (Pause in proceedings.)

5 MR. RHODES: Mr. Maynard, may we have the computer.

6 And can we pull DDX-4.2.

7 Q Can you tell jury who Cisco is?

8 A Cisco is known as a networking company. It is known for
9 connecting the world.

10 Initially it was known for making, in some sense,
11 the Internet happen. Then it became known for connecting
12 things around buildings, whether it is computers, whether it
13 is using wireless, wired, and much, much more.

14 Cisco has many other product lines as well. For
15 instance, is has a lot of solutions in security.

16 We also have teleconference solutions, something
17 know as Cisco Webex. Some of you may have used it. You may
18 have seen it being used in many TV shows as well.

19 And, as you probably learned during the course of
20 this trial, that we have data center switches, and data
21 center servers as well.

22 Q Where does Cisco have offices?

23 A Cisco is headquartered in San Jose, California, but it
24 has offices all around the world.

25 For example, the building you see right here, this

1 is our Boston office. We have been in Boston for a little
2 over 25 years. And in general in this area there are more
3 than about a thousand employees. And this particular
4 building, it's a couple of blocks away from the courthouse
5 here.

6 Q When did you start at Cisco?

7 A I started in April of 2009.

8 Q What's your title?

9 A My current title is Vice President Engineering.

10 Q How many employees do you lead today?

11 A Today I lead an engineering team of about 1,200 people.

12 Q We will get into more detail later, but at a high level,
13 which UCS products do you oversee?

14 A As of right now, all of them.

15 Q Can you give some examples of UCS customers that the
16 jury may be familiar with?

17 A UCS over the last 13 years, it has customers in many
18 verticals: Government, healthcare, financial, retail, a
19 whole bunch of them.

20 In terms of customers, if I were to name some
21 Boston customers, Staples, Wayfair, Mass. General, MIT,
22 Harvard.

23 And, of course, we have customers all around the
24 world, starting with say, government, Bank of -- American
25 Express, Bank of New York Mellon, and the list goes on.

1 Q And where did you go to college?

2 A I went to college back in India. I did my -- I joined
3 college in 1991, and I did two degrees simultaneously,
4 Master of Science in Chemistry and a Bachelor of Engineering
5 in Computer Science. And I completed both of them in 1996.

6 And then I did my Masters of Engineering in
7 Computer Science starting in 1997, finishing in 1999, at the
8 India Institute of Science, Bangalore, India.

9 Q Are schools in India ranked like schools in the United
10 States are?

11 A Yes, they are.

12 Q How is the India Institute of Science regarded in India?

13 A The India Institute of Science, or commonly known as
14 IISE, is the top university for graduates studies in India.

15 Q How does one get into a school like that?

16 A This is a common entrance exam. So people all around
17 India take it, and depending on your score, you get a chance
18 admission to the various courses in IISE.

19 Q How did you do on that common entrance exam?

20 A Thankfully, I did well. I scored 33rd of all in India,
21 and that helped me get into the computer science program or
22 the Masters of Engineering in Computer Science at IISE.

23 Q Let's briefly talk about your work history.

24 Where was your first job?

25 A My first job after I finished my bachelor's of

1 engineering in 1996 was with a company called Hughes
2 Software Systems, where I developed Windows and device
3 drivers.

4 After -- then I -- after a year of work, as I said,
5 I went and did my masters.

6 And after I completed my masters, I joined a
7 startup called Software & Silicon Systems, which was working
8 in networking silicon.

9 A year after I started working, the company was
10 acquired by Intel Corporation.

11 Q And then you became an Intel employee?

12 A Yes, I did. I continued with Intel for the next four
13 years.

14 Q And Intel is the company that makes the CPUs on the
15 servers that we have been speaking about?

16 A Yes. They are one of the companies, yes.

17 Q What was your role at Intel?

18 A At Intel, I started as a software engineer. By the time
19 I left, I was a system architect.

20 Q And were you awarded any patents for your work at Intel?

21 A While I was at Intel, I filed for two patents. And the
22 application went through its process, and it was eventually
23 issued a little after I left Intel.

24 Q And after Intel did you work at a few startups?

25 A Yes, a few actually.

1 After my time at Intel, I joined a company called
2 Greenfield Networks.

3 Greenfield Networks was eventually acquired by
4 Cisco, but I wasn't fortunate. I had quit just a couple of
5 weeks prior.

6 After that, I joined a company called Aurigo
7 Software. I was there for about two years.

8 Then I joined another startup called Ordyn
9 Technologies.

10 Q Let's skip ahead to your time at Cisco.

11 When again did you join Cisco?

12 A April 2009.

13 MR. RHODES: And turning to DDX-4.3.

14 Q What was your first role at Cisco?

15 A Cisco had a UCS Manager team in India. The team
16 Mr. Dvorkin was referring to. So they were looking to
17 augment that team with a presence in Bangalore. So I joined
18 the team to set up the UCS Manager team in Bangalore.

19 Q And UCS Manager, that's what's shown in this red
20 rectangle on the screen?

21 A Yes. UCS Manager is a piece of software, and it runs on
22 the fabric interconnect itself, which is the box to the left
23 of it.

24 Q And referring to slide DDX-4.4, how did your
25 responsibility grow over time?

1 A I was in India until August of 2015. So during those
2 six years, my responsibility expanded to include the
3 software which runs on the fabric interconnect and some of
4 the software which runs on the fabric extender.

5 Q And the fabric interconnect and the fabric extender,
6 these are the two blue boxes in the red rectangle?

7 A Yes, they are part of our fabric.

8 Q And turning to slide DDX-4.5, how did your
9 responsibility continue to grow?

10 A As I mentioned, I moved to the U.S. in August of 2015,
11 and gradually one model after the other I started becoming
12 responsible for.

13 For the last four, maybe five, years, I am
14 responsible for all of UCS engineering. And, as a result of
15 it, my engineering responsibilities include all of the
16 components you see here.

17 Q So you have responsibility over the entire UCS product
18 line shown here?

19 A Yes.

20 Q And does Cisco UCS have patents?

21 A Yes, it does.

22 Q And Mr. Dvorkin talked a little bit about some of those
23 patents?

24 A Yes, he did.

25 Q During this trial, the jury has heard about something

1 called "source code." What is source code?

2 A Source code -- I mean, you commonly hear about software.
3 Software is written -- software is source code.

4 And the source code itself is written for a
5 particular use. It could be your web browser, which is
6 software, which needs source code. It could be your email
7 client, or it could be applications which are running in the
8 data center.

9 I think we talked about payroll a couple of times.
10 For instance, there are banking institutions which have
11 credit card fraud detection applications.

12 All of these are software.

13 We heard about operating systems a few times. All
14 of those are software.

15 And all of these requires source code, and a source
16 code is a set of steps or a sequence of things typically to
17 achieve an end goal.

18 Q And during your career at Cisco, how long have you
19 personally reviewed UCS source code?

20 A For years.

21 Q Thousands of hours?

22 A More than thousands of hours, yes.

23 Q And how long have you personally written UCS source
24 code?

25 A Again for years, thousands of hours.

1 Q And that UCS source code, does that include source code
2 on multiple UCS devices?

3 A Yes.

4 A lot of the source code I wrote went into UCS
5 Manager, and I have some pieces of software I have written
6 which covers other aspects as well.

7 Q What companies originally developed UCS?

8 A UCS started its life, as Mr. Dvorkin explained, in Nuova
9 as "Project California," and eventually Cisco acquired them
10 in 2008. And in July 2009, it was launched as Unified
11 Computing Systems, or UCS.

12 Q So Nuova Systems, not Cisco, originally developed UCS?

13 A Yes, that is correct.

14 Q Did you bring some UCS servers with you today?

15 A Yes. Actually, I have a couple of models here to show
16 you.

17 MR. RHODES: Your Honor, may Mr. Packin bring out
18 the servers, and may the witness come out to show the jury?

19 THE COURT: Yes, he may.

20 (Whereupon, the witness stepped down.)

21 Q What did you bring with you here today?

22 A Today I have a couple of different models of UCS to
23 show.

24 The one on top, I'll start with this one, we call
25 it UCS C-Series. They are otherwise called rack servers.

1 Sometimes we refer to them as pizza boxes.

2 Q And what do you have in the middle of the cart here?

3 A The one in the middle of the cart here, this is a UCS
4 B-series or otherwise known as blade servers.

5 Q Because Mr. Packin already showed the jury the rack
6 server on Monday, can you bring out the blade server and
7 open it up.

8 A Yes. Let me do that.

9 Q Is this the server the jury saw in the opening?

10 A Yes, that's correct.

11 Q Can you please open it up.

12 A Yes.

13 So before I open it up, just one thing.

14 I mean, in the front you have the local storage
15 options for the server. So the first thing I'm going to do
16 is I'm just going to open up -- this is local storage. You
17 call this hard disk, sometimes SSD, and one itself is a self
18 hard disk.

19 Let me open this.

20 Q So can you point out the CPUs to the jury?

21 A So this, as I said, this is UCS B-Series or a blade
22 server. What goes in here are the disks.

23 The CPUs themselves, they are sitting underneath
24 the metal heat sinks here. So these are heats sinks. The
25 actual CPU is underneath that. You can see the markings

1 everywhere.

2 This particular system has two CPUs. We have
3 marked it as the front CPU and the rear CPU.

4 We have markings all over here which points
5 (unintelligible) CPU --

6 Q Did you add those markings for this case, or is this how
7 they are sold?

8 A Oh, this is how it's been sold. I think this particular
9 server was sold around 2014, 2015, and this is how it
10 looked.

11 Q What do the CPUs do?

12 A The CPUs are the workhorses in the system.

13 You heard about operating systems. The operating
14 systems run on the CPUs. All of the application, whether it
15 is payroll, databases, credits card fraud protection, email
16 exchange servers, all of them, they run on the CPUs.

17 Q And why do the CPUs have those large metal covers?

18 A When we talk about all of these applications, that is a
19 lot of work -- a lot of work gets done on the CPU.

20 So when you do all that work, things heat up. I
21 think all of us have that experience with a laptop, for
22 instance, which heats up as you're doing more things on it?

23 Similarly, the CPUs can get very, very hot when a
24 lot of work happens on them.

25 So one of the most important things in the server

1 design is to move the heat away from the CPUs, and these
2 metal heat sinks help to do that.

3 MR. RHODES: Mr. Maynard, can I please have the
4 document camera.

5 Q On the top cover of the blade server, are there
6 instructions on how to remove the CPUs and the heat sinks?

7 A Yes, there are.

8 Q Could you please remove one of those CPUs so we can see
9 it, and tell the jury the steps that you're taking?

10 A The first thing I am going to do is I am going to remove
11 these baffles so that I have some additional actual space.

12 What you see under the baffles are memory module
13 spacers.

14 The CPU itself is housed under the metal heat sink.

15 And the next thing I'm going to do is actually I'm
16 going to remove the heat sink.

17 The heat sink itself is secured by four screws. So
18 one of the things I'm going to do -- the first thing I'm
19 going to do is remove these four screws.

20 This is the heat sink, as I mentioned.

21 Q Now, what do you do next?

22 A The CPU itself is this particular -- the shiny object
23 here. And the CPU is secured by a couple of clips. And the
24 clips ensure that the CPU gets put on back with the
25 (unintelligible) server system.

1 The next thing I'm going to do is I'm actually
2 going to remove both of these clips, and that will allow me
3 to move things around, and I can pull out the CPU.

4 Q Let me show that on the camera here.

5 So the CPU has this plastic cover around it that
6 says "Cisco," and then what company name does it have on the
7 back the CPU?

8 A Yes. The black protective cover that you see here, it's
9 a plastic cover. The CPU itself is the shiny objects. It
10 is made by Intel, in this particular case it's Intel Xeon on
11 CPU.

12 Q Can you point out the network interface card, or the
13 NIK?

14 A In this particular system, this is the network interface
15 card, and this is the NIC.

16 Q Can you please remove it.

17 A The network interface card is secured by a couple of
18 screws, but we should be able to remove it.

19 Q What does the network --

20 A This is the network interface card.

21 Q What does it do?

22 A The network interface card -- the primary goal of the
23 NIC is to ensure that the server is connected to the outside
24 world. This particular NIC I gave you is an Ethernet NIC.
25 And what it makes sure is this part of the server can talk

1 to the external network. It could be for connectivity, web
2 connections, as an example, or it could be for storage. So
3 all of that happens on the NIC.

4 Q Does UCS also have Giganet NICs?

5 A The UCS does not have Giganet NICs. We've never had
6 that.

7 Q Why don't the network interface cards have those large
8 metal covers?

9 A The amount of work that the network interface card does
10 is a lot -- I mean it's hardly -- all it does is take
11 packets from this side and sends it over to the other side.
12 And then the other direction takes the packets and gives it
13 here.

14 So the total amount of work which is done in the
15 NIC is only the packet transfer. Applications do not run on
16 the NIC. And that's why -- the heat sink on it is very,
17 very small. And it doesn't use that much power either.

18 Q How much power does the CPU use versus the network
19 interface card?

20 A The network interface card that you have here, right, it
21 hardly uses any power.

22 So you can think about this as using probably
23 something like lightbulb, right.

24 But the two CPUs here, they are the workhorses on
25 the system. All the applications run here. In this

1 particular model, I think the CPUs would probably pull in as
2 much power as a microwave.

3 Q And you were here for Dr. Jones' testimony on Monday?

4 A Yes, I was.

5 Q And Dr. Jones said that the network interface cards
6 weren't independent devices, but they operated under the
7 CPUs. Do you remember that?

8 A Yes, I do remember hearing that.

9 Q Do you agree with him?

10 A No, I do not.

11 Q Can the network interface cards operate without the
12 CPUs?

13 A Yes, they do.

14 So -- actually, let me -- before I talk about that,
15 right.

16 Say, for example, all of us have TVs. When we are
17 watching the TV, the TV is on. And we take the remote, and
18 we switch it off.

19 When we switch it off, it is not completely off.
20 The TV is on standby. It is actually waiting for our
21 commands to turn it on again.

22 Only when you unplug the TV, is the TV fully
23 switched off, as in it doesn't use any power.

24 The other day Mr. Packin showed you the power
25 supply. The way we have designed this power supply, is if

1 it has no power coming in at all, as when it is completely
2 unplugged, it is off.

3 But the moment it is -- you have this power supply
4 in this system, and you have the power cord coming in, it is
5 on standby. So when it is on standby -- actually on this
6 particular -- on the piece of box here, it supplies power to
7 the network cards.

8 But the CPUs do not have any power supply at all.

9 See these cards are up and running even before the
10 CPUs are running.

11 And very much like the remote, we use commands to
12 the NIC to switch on the rest of the server.

13 THE COURT: This is interesting, and I don't mean
14 to disrupt. But one of our court reporters is being called
15 to another judge's courtroom. So I thought this might be a
16 good time to take the morning recess. We did start early
17 this morning.

18 MR. RHODES: Sure, your Honor.

19 THE COURT: It's not the most opportune time to
20 interrupt, but I think it's a good time, all things
21 considered.

22 So let's come back in 25 minutes, jurors, and we'll
23 continue with the demonstration.

24 THE CLERK: All rise.

25 (The jury entered the courtroom.)

1 THE CLERK: Resuming on the record, civil Action
2 16-11613, Egenera versus Cisco. Thank you. You may be
3 seated.

4 BHASKAR JAYSKRISHNAN, Cont'd.

5 DIRECT EXAMINATION, Cont'd.

6 **BY MR. RHODES:**

7 Q Before we broke, we were talking about whether the NICs
8 are independent devices or operate under the CPUs, and you
9 were telling us about standby mode. Can you please remind
10 us what standby mode is?

11 A I think we talked about the standby mode in the context
12 of a television or TV. In the context of a server. As I
13 mentioned, we have a couple of power supplies which go in.
14 These power supplies, if they are not plugged in there is no
15 power.

16 THE CLERK: Sorry. The court reporter can't hear
17 you.

18 (Court reporter moved.)

19 Q So would you, please, briefly remind us what standby
20 mode is?

21 A We spoke about standby power in the context of TVs where
22 a TV can be on or it can be on standby where it is waiting
23 for the instructions from your remote. Or you can unplug it
24 where the TV is not using any power at all.

25 In the case of a server, the way we have designed

1 these power supplies, of course, if you do not have any
2 cables, any power cables coming into them, there is no power
3 being used at all. But the moment you plug them in, they
4 supply a minimum bit of power called the standby power, and
5 the server itself is in the standby mode. When that
6 happens, the network adapters that we've designed in UCS are
7 actually up and running and they are actually waiting for
8 instructions.

9 But when this server is on the standby mode, the
10 CPUs, they have no power at all. They are completely shut
11 off. But the network adapter is on and it is working with
12 the system to wait for instructions so that it can be
13 powered on when required. So that is standby and when it is
14 fully on, it is full power mode.

15 Q So in standby mode, the network interface cards can be
16 turned on while the CPUs are turned off?

17 A Yes. The network interface cards are on, CPUs are not
18 functioning.

19 Q When the CPUs are turned off do the network interface
20 cards still know the network topology?

21 A Yes. Actually, the more we use, we send our network
22 cards instructions directly from the fabric interconnect.
23 We've heard about the fabric interconnect a couple of times
24 as the control node. So you would typically see a cable or
25 a connection which is going out from the network adapter

1 here to the fabric interconnect. We send instructions
2 through the cable and we program our NICs.

3 Q To take a more extreme example, if I took the CPUs
4 completely out of the server could the network interface
5 cards still operate?

6 A Yes, they can.

7 Q Is there a test to determine whether the network
8 topology is established on the network interface card with
9 the CPU?

10 A Yes. So what you can do is use our system, use UCS
11 Manager, set up everything to start with. Then as a next
12 step you can completely shut off UCS Manager so that no one
13 else is making any changes in the system. Then what you can
14 do is you can remove a network adapter from the server and
15 you can move it to another server, and when you power on the
16 other server you will see that the network MAC address -- we
17 spoke about the MAC address a little bit. It looks a little
18 bit like a phone number. When you move it, you will see
19 that the network, the MAC address moves along with the NIC
20 card.

21 Q Let's break that test down step by step. How do you
22 first get the MAC address into the network interface card?

23 A UCS Manager, I think we talked about this construct
24 called a service provider. You would create something
25 called a VNIC or virtual NIC, which is part of the service

1 profile. As part of it you have a MAC address.

2 So when we take that service profile, which is a
3 software construct, it is a very logical thing, and we call
4 it associating it to a physical server. So you say that a
5 service profile needs to be associated with a physical
6 server. When you do that, UCS Manager pushes the network
7 topology and identities through the network onto the network
8 interface card.

9 Q And that includes putting a MAC address onto the network
10 interface card?

11 A Yes, that is correct.

12 Q And then what would you do next in your test after you
13 put a MAC address into a network interface card?

14 A The first thing I would do is I would shut down UCS
15 Manager and everything else so that you know that no one
16 else is making any changes whatsoever. I would boot up this
17 system from the operating system, I would see what is the
18 MAC address of this one, just as verification. Then I would
19 shut this down, pull out the NIC card here, and I would move
20 it to another server. And when I power it back up, you can
21 see that the MAC address moved along with that card.

22 Q So if you moved the network interface card from this
23 server to another server, the MAC address would move along
24 with it?

25 A Yes. All our network topology, network identity

1 information, all of that sits on the network card. So, yes,
2 it will move along with the NIC.

3 Q And what would happen if you did that same test with the
4 CPU?

5 A Nothing would happen because the NIC has no network
6 topology information or network identity information. When
7 it comes up, it just asks the network card for it.

8 Q Do CPUs even have MAC addresses?

9 A In the UCS architecture, no.

10 Q And is this just a hypothetical test or is this
11 something your team has done?

12 A Well, I mean, UCS has been my life for more than a
13 decade now as an -- more than thirty years. So I know it
14 for certain, but in any case, in an abundance of caution, I
15 had my team run the test and we verified our understanding.

16 Q Can you please return to the stand?

17 A Thank you.

18 MR. RHODES: Your Honor, may I pass out the CPU and
19 the network interface card to the jury so they may see it?

20 THE COURT: Yes. And then give the court reporter
21 time to reposition.

22 MR. RHODES: Of course.

23 (Pause in proceedings.)

24 Q Thank you. So I think you might have misspoken before,
25 but it is the NIC or the CPU that has the network topology?

1 A Oh, the NIC has the network topology.

2 MR. RHODES: And, Mr. Maynard, can I please have
3 the computer?

4 Q Let's apply your test to Dr. Jones' phone SIM card
5 analogy.

6 MR. RHODES: Mr. Herzka, please pull up JTX-536 at
7 page 20.

8 Q Do you remember seeing this slide with Dr. Jones on
9 Monday?

10 A Yes, I do.

11 Q And what is this slide saying about service profiles and
12 network interface cards?

13 A In this particular slide, it calls out that the service
14 profile is a little bit like the SIM card, and there are
15 smaller boxes there. It talks about network policy, storage
16 policy, and server policy but in the context of this
17 discussion, I think we are talking about the network policy.

18 Q And if I took the SIM card out of my phone and put it
19 into a new phone, would my phone number move with it?

20 A Yes, it would.

21 Q And that's because the phone information is programmed
22 in the SIM card?

23 A Yes, the phone number is programmed in the SIM card, and
24 in UCS the network identity or the equivalent of it is a
25 NIC. So if you move the NIC, the network identity will move

1 along with it.

2 Q So in your test the NIC, not the CPU, would be the SIM
3 card?

4 A Yes, that is correct.

5 Q So now I'm putting up part of the trial transcript from
6 day 1 of the trial.

7 MR. RHODES: Could I have the document camera,
8 please?

9 Q So I'm putting up page 67, lines 11 through 15, which is
10 when Mr. Desmarais was talking about his bedrock facts. You
11 were here for that; right?

12 A Yes, I was.

13 Q And I'm just going to go sentence by sentence through
14 here and see, you know, if you agree, disagree, or what your
15 reaction is to each of the pieces of bedrock fact.

16 So starting with the first sentence it says, "The
17 Cisco UCS does not set up the network by programming the
18 processors."

19 A Yes. We do not -- we do not program the CPUs.

20 Q And then Mr. Desmarais said, "We program the NICs, we
21 designed the NICs ourselves."

22 A Yes. I think we spoke about the NIC development a few
23 times before, yes. We have developed many NICs over the
24 last thirteen years and we programmed the NICs that we
25 developed.

1 Q And, "The NIC is not a CPU." Do you agree with that
2 one?

3 A It's two completely different things.

4 Q And, "We do not infringe this claim." Do you also agree
5 with that?

6 A I strongly believe that.

7 Q So do you agree with all of Mr. Desmarais' bedrock fact
8 number 3?

9 A Yes, I do.

10 Q Now, do Cisco's documents also tell us that the network
11 interface card, not CPUs, establish the network?

12 A Can you repeat that again, please?

13 Q Sorry. Do Cisco's documents also tell us that the
14 network interface cards, not the CPUs, establish the
15 network?

16 A Yes.

17 MR. RHODES: Mr. Maynard, can we have the computer
18 back, please?

19 Q Let's look at a document that's been marked as evidence
20 in this case.

21 MR. RHODES: Mr. Herzka, please pull up JTX-182.

22 Q What is JTX-182?

23 A This document is what we call an Operational Run Book.
24 So we share it with the customer so that the customer has
25 some information about the technology and how to use our

1 technology.

2 Q And Dr. Jones also discussed JTX-182?

3 A Yes.

4 MR. RHODES: Mr. Herzka, please jump to page 84 of
5 the demonstration guide.

6 Q Does this show a screenshot of UCS Manager Wizard?

7 A Yes. This is the graphical interface for UCS Manager.
8 And we briefly spoke about creating a virtual NIC, and this
9 is the screen for creating the virtual NIC.

10 Q And what's a virtual NIC?

11 A Any NIC, or network card, it has these connections to
12 the external board. There could be one, there could be two,
13 four, any number of them. A virtual NIC is a logical
14 representation of that. A physical NIC can have many
15 virtual NICs eventually residing on them and sharing the
16 cables which go out of the system. So a virtual NIC, you
17 can think about it as an imaginary line coming out of a NIC.

18 Q How does the virtual NIC relate to the network topology?

19 A The NIC is the network topology. I mean, when we talk
20 about network topology, topology is about the connections.
21 So a VNIC is the one that establishes the connection from
22 the server to the external world. In our case it is the
23 fabric interconnect on the other end. So VNIC is the
24 network topology.

25 MR. RHODES: Mr. Herzka, could you please zoom into

1 the MAC address window?

2 Q What is a customer selecting here?

3 A Every single time you create a NIC or a connection it
4 needs an identity. As I mentioned, a MAC address looks a
5 little bit like a phone number. So that line has a number.
6 Right? So when you are creating this VNIC, or virtual NIC,
7 you need to assign it an identity. In this particular case,
8 we support a concept called a pool. A pool is something
9 where we can give it a bunch of numbers. And as we create
10 this VNIC, it will pick a number out of the pool.

11 Q And switching to the VLAN window, what's a customer
12 selecting there?

13 A The VLAN is our virtual LAN, our virtual local area
14 network. It is another piece of technology which has been
15 around I would think maybe twenty-five, thirty years. And
16 it is a way of interconnecting service. So here what one is
17 selecting, you can see it under the VLAN box, what the user
18 is doing here is selecting which other servers, or which
19 group of servers this VNIC should be able to talk to.

20 The one other thing I would call out is on the top
21 you have this thing called fabric ID. We have talked about
22 fabric interconnects before, which is like a switch. In the
23 UCS design typically you would have two switches, typically
24 we call them a fabric A and -- a fabric interconnect A and a
25 fabric interconnect B. So you have two. So not only are

1 you selecting which groups of servers you want to talk to,
2 but you're saying, hey, these are the interconnects I used
3 to talk to the other servers.

4 Q And that's network topology information?

5 A Yes. All of these are part of the VNIC.

6 MR. RHODES: We can close that.

7 Q Now, Dr. Jones mentioned that the CPU is aware of the
8 MAC addresses on the network interface cards. Do you
9 remember that?

10 A Yes, I do.

11 Q Can the CPU ask the network interface card for its MAC
12 address?

13 A Yes, it can.

14 Q Does that mean that the CPU is programmed with the
15 network topology?

16 A No, not at all. For instance, I could ask Mr. Rhodes
17 for his phone number or I could pick his phone number. But
18 just because I know it, doesn't mean it's mine anymore.

19 Q Now, Dr. Jones showed some of his source code analysis
20 here on Monday. Do you remember that?

21 A Yes. I was here.

22 Q And you're familiar with UCS source code?

23 A Yes. As I mentioned, UCS has been the last 13 years of
24 my work life.

25 MR. RHODES: Mr. Maynard, could I have the

1 projector, please?

2 Q So know I'm going to show you page 23 of PX-BJM which we
3 looked at on Monday. Let me zoom out a little, too zoomed
4 in. So let's focus on paragraph 43 of PX-BJM. What does
5 this software step do?

6 A Say that again?

7 Q Sorry. So starting at paragraph 43, there's this long
8 software step, samdmeFsm, this long thing. What does that
9 software step do?

10 A To start with, I need to thank Mr. Dvorkin for coming up
11 with such a long name. As much as it has such a long name,
12 I think part of it, the NIC config part of it, it refers to
13 what it is doing. It is actually configuring the NIC to
14 establish the virtual local area network topology.

15 I see a problem with this particular statement
16 where it says which programs the computer processors for UCS
17 system. That is wrong. We do not program the computer
18 processors. We program the NIC to establish the virtual
19 local area network topology.

20 Q And it continues to say "to establish the virtual local
21 area network topology"?

22 A That is correct.

23 Q And do you agree with Dr. Jones that this step does do
24 that?

25 A Yes. The step does configure the network topology, but

1 as I said, we do it on the NIC, we don't do it on the
2 computer processor.

3 Q Now, turning to paragraph 47, we've got this,
4 Mr. Dvorkin's long command step name here again. It says
5 that, "The programming utilizes software running on the BMC
6 and VIC of the Intel Processor Chip(s)' blade."

7 What is that referring to?

8 A So this step 47, or line 47, it repeats the same thing
9 as line 43. But this one is a bit more accurate. It
10 basically says we are utilizing the software running on the
11 VIC. That's exactly the point. We use the NIC. We program
12 the NIC. I think there is a lot about the Intel Processor
13 Chips in a couple of places here, but at the end of the day
14 we program the NIC.

15 The last part of this line says "for use by the
16 main CPUs." Yes. The job of a NIC is to connect the CPUs
17 to the external world. So, yes, it is for the use of the
18 CPUs, but the network topology is on the NIC.

19 Q And when it says VIC here, I know Cisco uses a lot of
20 acronyms. That's referring to the network interface card?

21 A Yes. NIC stands for network interface card. That's a
22 very generic term. With Cisco, for the cards that we build,
23 we call it a VIC, or a virtualized interface card. But at
24 the end of the day a VIC is a NIC.

25 Q Now, let's turn to paragraph 83 of PX-BJM. I'm going to

1 zoom out a little so we can see the whole thing. So here
2 the last sentence is telling us, "The actual VNIC creation
3 process happens on a Palo, Menlo or Cruz (or equivalent) VIC
4 of a processor blade." What is being said here?

5 A The VNIC creation, the, the -- what we saw on that
6 graphical screen there, eventually it gets created on the
7 network adapter, or the NIC. And that is what this line is
8 calling out. This line 83 is actually in sync or agrees
9 with line 47. Line 43 was obviously not because it is not
10 happening on the processor.

11 Q And Palo, Menlo, Cruz these all refer to network
12 interface cards?

13 A Yes. We have developed, in the last thirteen years, at
14 least five network interface cards and each of them have
15 code names, Palo, Cruz. There are a bunch. All of those
16 are code names for our NICs. Menlo is slightly different
17 because it's a name of a different chip that we did, but at
18 a high level the philosophy is very similar.

19 Q Do you agree with Dr. Jones that the VNIC topology
20 information is created on the network interface card?

21 A It is created on the NIC, yes.

22 Q Now, Dr. Jones also mentioned Monday that programming
23 the NICs is substantially the same as programming the CPUs.
24 Do you agree with that?

25 A They are two completely different things. I just gave

1 you an example where we programmed the NIC even when the
2 CPUs don't even have any power. So the network topology is
3 set in the NIC. Now, when the CPU boots up it will learn a
4 lot about the network topology by asking the NIC, but the
5 programming of the NIC is already done.

6 Q Let's talk a little bit more about that. What is the
7 main benefit of Cisco's approach of programming the network
8 interface cards?

9 A By programming the network interface cards, or the NICs,
10 we have kept all the complicated changes away from the
11 operating system. So we don't have to run any complicated
12 piece of software on the operating system. Mr. Dvorkin
13 referred to aspects of it. The more software you have to
14 run on the CPUs, something which belongs in the customer's
15 domain, the more complicated it can be. So at a high level
16 I would call this OS independence or OS compatibility or
17 some such phrase. But at the end of the day, it is about
18 keeping ourselves as independent as possible from the
19 operating system.

20 Q We heard earlier during this trial that Egenera had
21 issues with Windows compatibility. Did UCS have similar
22 problems?

23 A No, not at all. As pieces of software, there are
24 problems but the drivers that we run on an operating system
25 is very, very simple. It takes packets on one end, gives it

1 to the other, and does it in the other direction. And as a
2 result of it we did not have the kind of problems Egenera
3 had, or at least the ones I saw during this trial.

4 Q Did you see, at the beginning of this trial, Mr. Packin
5 speak with Mr. Brownell about some of the aspects of
6 Egenera's system?

7 A Yes.

8 Q And Mr. Packin was writing JTX-486 with Mr. Brownell to
9 discuss some of those aspects of the BladeFrame
10 architecture?

11 A Yes.

12 Q I want your help completing this as a comparison with
13 UCS. If you give me a minute, I'll make another column
14 here.

15 So starting with the first one, they discussed
16 complicated OS modifications. Does UCS have those?

17 A No, all our -- all the complicated logic is on the NIC.
18 As a result, we do not have complicated OS modifications.

19 Q And they mentioned that Egenera had blades without
20 Ethernet NICs. Does UCS have those?

21 A Every single UCS system we have ever sold has an
22 Ethernet NIC on it. Ethernet is the most common
23 connectivity technology which has been around for thirty
24 years. Everyone uses it. Actually, I see a bright orange
25 cable right here in the courthouse which is an Ethernet

1 cable as well. It is very, very common. And we chose to
2 use a technology which is common.

3 Q And Mr. Packin also discussed Egenera's centralized I/O
4 gateway. Does UCS have one of those?

5 A No, we do not use a centralized I/O gateway.

6 Q Does UCS derive any benefits from not having a
7 centralized I/O gateway?

8 A The lack of a centralized I/O gateway have multiple
9 benefits. You can -- I think we've talked about speed or
10 bandwidths, that is the amount of traffic or amount of
11 packets you can process. But if you have something
12 centralized, the centralized I/O gateway has to process a
13 lot and that slows down the system. The lack of a
14 centralized I/O gateway gives us scale and it gives us
15 bandwidth benefits.

16 Q Does Cisco use a storage protocol that allows it to not
17 have a centralized I/O gateway?

18 A Yes.

19 Q What would that be?

20 A One of the common -- I think to back it up a little bit,
21 I think when we talk about storage, we talked about some of
22 the local storage options like the hard disk, which are
23 sitting on the servers. But when customers use storage,
24 they could be sitting in these things called storage arrays,
25 and they sit in the data center. And to access them, you

1 have to go over the network. And one of the protocols that
2 is used is called fiber channel, sometimes referred to as
3 FC. What Cisco did, working with others in the industry in
4 2007, is we standardized a protocol called FCOE, or fiber
5 channel over Ethernet. That technology does not require a
6 centralized I/O gateway.

7 MR. RHODES: Mr. Maynard, can I have the computer,
8 please?

9 Mr. Herzka, please pull up JTX-105.

10 Q How does this presentation refer to fiber channel over
11 Ethernet?

12 A This particular presentation is a technical deep dive.
13 This is used sometimes to educate the sales team or
14 sometimes to share it with our customers so that they know
15 the benefits of our technology. So this is a document which
16 lays out the technology used in UCS with some amount of
17 peak.

18 Q Please turn to page 28 and call out the top and bottom
19 benefit bullets. What benefits of fiber channel over
20 Ethernet are being referred to here?

21 A As this appears, fiber channel over Ethernet is
22 something which runs in Ethernet. So we talk about these
23 connections or Ethernet cables. So the storage traffic runs
24 on the same connection as your data traffic. As it is
25 referred, we do not need a separate set of cables for

1 storage. That's what we are calling out here by as fewer
2 cables. And as I mentioned, there is no centralized gateway
3 because this protocol was designed to not have a gateway.
4 That is why you have the "no gateway" called out in the
5 later part.

6 Q Let's switch gears and talk a bit about Cisco's
7 competitive analysis. What type of competitive analysis
8 does Cisco compare?

9 A Cisco does competitive analysis all the time. That's
10 the best way to compare yourself and the product you have
11 developed with competition. Anytime a competition brings
12 out a new product or they bring out new software which comes
13 up with additional capabilities, we compare ourselves with
14 them so we know where we stand.

15 Q Is there anything unusual about doing competitive
16 analysis?

17 A Not at all. It's part of running a business.

18 Q Did the companies you worked at prior to Cisco also do
19 competitive analysis?

20 A Yes, of course.

21 Q Who are UCS's main competitors?

22 A The server market is a very diverse market. It has a
23 lot of vendors from around the world. But I would consider
24 HP, Dell, Lenovo to be probably among the largest
25 competitors.

1 Q We heard about HP a few times during this trial.
2 Mr. Brownell told us he wasn't seeing HP in the market and
3 Mr. Manca told us HP wasn't a virtualization vendor. Do you
4 agree with them?

5 A No, not at all. I joined in April of 2009, and when I
6 joined Cisco, and in particular I joined the Cisco UCS
7 business, it was all about winning business away from HP
8 because HP was the largest competitor, had the largest blade
9 presence, and it was the competitor to beat.

10 Q Let's see what the evidence says about HP.

11 MR. RHODES: Mr. Herzka, please pull up JTX-140.

12 Q What is this presentation?

13 A A few different names here. HP Virtual Connect, that is
14 the name of HP's solution, Hewlett-Packard's solution. You
15 call it HPVC because we love our acronyms.

16 In this particular case, Mr. Sean McGee, he is a
17 technical specialist associated with the sales team. His
18 job is to put together collateral which compares our
19 solution with competition so that the sales team can sell
20 effectively to customers, positioning our strengths.

21 Q Now, where did Mr. McGee work before Cisco?

22 A Incidentally, he worked in HP itself.

23 Q Let's turn to page 9. Focusing on the title, what is
24 this slide talking about?

25 A I think this slide is from -- yes, I see it being called

1 out at the lower part. It's in 2009. In 2009, HP Virtual
2 Connect was UCS's number 1 competitor. I think I mentioned
3 it had the largest market share. Actually, you can see it
4 right there, that HP as a blade server vendor had
5 55 percent, more than half of the worldwide market, and it
6 had 51 percent of market share as counted by, I think, the
7 number of units or the number of servers that they sold. So
8 everything in 2009 was about beating HP and winning
9 business.

10 Q Focusing on that third bullet point, I don't want to get
11 into all the technical details, but what does this tell us
12 about HP and being a virtualization server vendor?

13 A So we've talked a little bit about stateless servers a
14 few times before. What makes it stateless is the fact that
15 you can provide identity, you can move identity, you can
16 move topology, you can move a bunch of different things from
17 one server to another one. If you see this, it says, hey,
18 Virtual Connect has all of these capabilities but UCS does
19 it better. And I think ten years later I still believe we
20 do it better.

21 But the point here is by 2009, or July 2009, by the
22 time I joined, HP not only did it have a credible solution
23 in the market, they were number 1 in the market.

24 Q Personally, how often has Egenera come up as a
25 competitor in your work?

1 A Not much at all. I've heard about Egenera a lot more
2 during this trial than my decade prior to that.

3 Q But during this trial you've learned that Cisco and
4 Egenera competed for some accounts?

5 A Yes, I've heard it a few times.

6 Q Let's look at one of those documents again, JTX-229,
7 that Mr. Clark discussed last week. What is this document?

8 A This document is a competitive comparison between
9 Egenera's BladeFrame solution, comparing it with UCS, and I
10 believe it is probably from the 2009/2010 time frame.

11 MR. RHODES: Mr. Herzka, please flip to page 5 and
12 magnify the title and top row.

13 Q What is this row telling us about UCS relative to
14 Egenera?

15 A Before I comment on this row, one call-out. Actually,
16 if you see this particular table, the winner is sometimes
17 UCS, sometimes Egenera. Right? I mean, Egenera solution
18 was different from UCS, and as a result of it, the merits of
19 these two solutions were completely different.

20 In particular, with respect to this line, it is
21 about the operating system installation experience. What --
22 with UCS you get an out-of-the-box experience. What does
23 out-of-the-box mean? Say if you went and bought a version
24 of Windows. It used to come as a boxed set and you used to
25 take the CD out. But it is all virtual these days. But

1 then when you install it on the UCS it will just work
2 because we have worked with Microsoft, we have the drivers
3 as part of them, as part of Windows. And our customers,
4 they get to use the same operating system image,
5 irrespective of where they buy the server. It could be UCS,
6 it could be HP, it could be Dell. But in the case of
7 Egenera, they had to go through additional steps to
8 incorporate all this software before they could use it.
9 That's why it is called out as proprietary nightmare.

10 Q And that's the OS compatibility we discussed earlier?

11 A Yes, that is correct.

12 MR. RHODES: Turning to page 2, Mr. Herzka, please
13 pull out the title in the bottom two rows.

14 Q What's the Investments row telling us?

15 A In this particular case, it is referring to investment
16 protection. Say you pick a technology, which means you are
17 learning that technology, you are training a lot of people
18 in your data center with that technology, and you want to
19 make sure that you use it for as long as possible.

20 Here the particular reference is about the
21 networking technology. Cisco has been using Ethernet for
22 many years and UCS uses Ethernet as well. In July 2009,
23 when the product was launched, the network bandwidth or
24 speed which UCS provided was at least ten times as much as
25 Giganet, or ten times as much as Egenera solution. So we

1 were already fast.

2 And the reference you see here to 40G, it is a
3 reference to 40 gigabits per second Ethernet, it refers to
4 speed. When we came out, it was in July 2009, it was 10
5 gigabits Ethernet and 40 gigabits was coming. Which means
6 we were already ten times as fast, and we were going to
7 become forty times as fast. So that is a lot. And Egenera,
8 as a technology, was probably not going -- was not going
9 anywhere. And in terms of investment protection, we were
10 telling everyone that Ethernet is the standard technology
11 and to invest in it.

12 Q Moving to the scalability row, what is that telling us?

13 A With respect to scalability, when you manage servers,
14 the number of servers you can manage together is called a
15 domain. You manage it all as one group. In this particular
16 case, in UCS, you can manage up to 160 servers. Of course,
17 when we released it, we were only blades but then we had
18 other servers as well. But with UCS you can manage 160
19 servers as if it was one entity. In the case of Egenera it
20 was twenty-four. So for you to get to sixteen, obviously
21 you need seven or more instances of Egenera solution. The
22 more instances, the more the management complexity.

23 I think during this trial we've talked about
24 operational costs a little bit. So the better the
25 scalability, the lower the operational cost. And that is

1 why in this particular case we are talking about UCS having
2 better scalability than Egenera solution.

3 Q Because this is a patent case, let's wrap up by talking
4 about the patent. When did you first review the
5 '430 patent?

6 A The '430 patent was brought to my attention towards, I
7 would think, the end of 2016. So I did go through the
8 patent in a fair bit of detail in 2016, and I think my
9 deposition happened sometime early 2018. And, again, I
10 spent a fair time on it in the lead-up to this trial.

11 Q And why did you review the '430 patent?

12 A Any patent claim we take it very seriously. And since
13 it was brought to my attention, I spent the time to make
14 sure that we were not infringing on the patent.

15 Q Is UCS a copy of Egenera?

16 A Absolutely not.

17 Q Does UCS infringe the '430 patent?

18 A Absolutely not.

19 MR. PACKIN: Objection, didn't lay a foundation.
20 Move to strike, your Honor.

21 THE COURT: Denied. I already ruled on that.

22 All right. Cross-examination?

23 **CROSS-EXAMINATION**

24 **BY MR. THOMASES:**

25 Q Good morning.

1 A Good morning.

2 Q Now, we had discussions last week so I'm going to try to
3 keep this brief. Okay?

4 A Sure.

5 Q Thank you. I'm going to ask you, again, yes-or-no
6 questions to try to move this along, if you can answer it.
7 If not, let me know, please.

8 A Yes.

9 Q All right. You showed the jury a C-Series server and a
10 B-Series blade server; right?

11 A Yes, that is correct.

12 Q Okay. But you don't have any fabric interconnect here;
13 correct?

14 A That is correct.

15 Q The fabric interconnect is what runs UCS Manager?

16 A Yes.

17 Q And you don't have anything called a fabric extender or
18 the I/O module here; correct?

19 A It is not on display here, yes.

20 Q So these servers do not run UCS Manager; correct?

21 A No. The UCS Manager runs on fabric interconnect.

22 Q And obviously there's no rack here with multiple
23 servers; correct?

24 A No.

25 Q And so the B-Series blade server cannot be used in the

1 UCS system without a fabric extender or the IOM, the I/O
2 module?

3 A Except in the case of UCS Mini. But if you want to use
4 it with a fabric interconnect, you need an IOM.

5 Q But just generally speaking, B-Series servers cannot be
6 used in the UCS system without either a fabric extender or
7 an IOM; correct?

8 A That is correct.

9 Q And then we talked a little bit -- you talked a little
10 bit about the topology.

11 A Yes.

12 Q Yes. And according to you, "topology" typically means
13 connectivity, a physical or virtual set of connections
14 between various entities; correct?

15 A Yes.

16 Q And in the UCS domain, as managed by the UCS Manager,
17 there's connectivity between the servers; correct?

18 A Yes, that is correct.

19 MR. THOMASES: So why don't we call up the patent,
20 JTX-1. And we're going to go to column 32, please.

21 Q Now, you talked about network topology a lot in your
22 examination; correct?

23 A Yes, I did.

24 Q And you also talked about the '430 patent; correct?

25 A Yes.

1 MR. THOMASES: Okay. Can we go to column 32, which
2 is claim 7? It is on the third to last page.

3 MR. RHODES: We don't have a copy of the patent.

4 MR. THOMASES: Do you have a copy of JTX-1, please?
5 We could blow it up on the screen. It'll be easier for you.

6 The bottom is claim 7, and at the top can you pull up
7 the language in the first two paragraphs?

8 May I approach, your Honor, if the witness needs a
9 copy?

10 THE COURT: You may.

11 MR. THOMASES: Thank you.

12 Okay. Can we -- Mr. Fitzgerald, can you highlight the
13 language specifying the second paragraph? Right there.
14 Then the (ii), 2, can you illustrate all of that?

15 Q So the claim says, "Specifying a virtual local area
16 network topology defining interconnectivity and switching
17 functionality among the specified processors of the virtual
18 processing area network." Correct?

19 A Yes, I read that.

20 Q I read that correctly? Okay.

21 So let's call up JTX-202 at figure 100. We looked
22 at this the last time we spoke. Now, you did say we could
23 blow this up. But in the UCS blade servers, the servers had
24 both CPUs and interface cards?

25 A Yes.

1 Q And the interface cards are also called I/O adapters in
2 this figure?

3 A Yes.

4 Q And the CPUs are X86 computers; right?

5 A Yes.

6 Q Okay. So if -- let me ask you this: Network interface
7 card, "interface," that means an interface between the
8 network and the CPU; correct?

9 A Yes.

10 Q Okay. So if you have an application running on this X86
11 CPU, and it has to send a message to the software running on
12 it, has to send a message to a different CPU on a different
13 server in a UCS system -- you follow me?

14 A Yes.

15 Q Okay. That message from the software program on the
16 first CPU must go through that NIC card to get to the other
17 CPU on the other server; correct?

18 A Yes. Any networking technology works like that.

19 Q And to do that, on the first CPU it must use NIC drivers
20 that are running on that CPU; correct?

21 A Every -- every NIC has drivers, yes.

22 Q Okay. So it goes from the X86 computer using the
23 drivers on the operating system in that computer; correct?

24 A Yes.

25 Q And it goes to that interface card?

1 A Yes.

2 Q And it goes to the fabric extender?

3 A Yes.

4 Q It goes to the fabric interconnect?

5 A Yes.

6 Q To a fabric extender?

7 A Yes.

8 Q To another server?

9 A To another I/O adapter and a server, yes.

10 Q And then to the CPU in that other server; correct?

11 A Yes.

12 Q So the message cannot be sent from the first CPU if that
13 first CPU is not running the OS; correct?

14 A Yes, that is correct. For that CPU to do anything it
15 needs an operating system.

16 Q It needs to boot with an operating system; correct?

17 A Yes.

18 Q And if that CPU doesn't have the right drivers for that
19 adapter card it also can't send the message; correct?

20 A It would not. The operating system would not know how
21 to use that network card. That is correct.

22 Q And in a UCS system, the drivers that are running the
23 operating system on the CPU are written by Cisco; correct?

24 A Yes.

25 Q And they're delivered to the customers by Cisco;

1 correct?

2 A No. Actually, it depends. It is written according to
3 the specifications that are provided by the OS vendor and we
4 provide it to the OS vendor. And the OS vendor includes it
5 as part of their product. That's why you call them in-box
6 drivers. Then you could have other ways of giving out the
7 drivers. But, in general, we recommend in-box drivers.

8 Q But Cisco has the right drivers for every different
9 operating system that could run on the UCS CPUs; correct?

10 A The drivers are typically written by the NIC owner, and
11 in this particular case it is Cisco, yes.

12 Q And we discussed the service profile. And, as you said,
13 the service profile as defined in the UCS Manager is a
14 logical view of what the server needs to be in terms of the
15 number of interfaces, its identity and some of the
16 configuration elements; is that correct?

17 A That sounds right.

18 Q And then the service profile, to be associated with a
19 server, the logical view of the service profile is
20 essentially pushed to the physical entity; correct?

21 A Yes.

22 Q And a virtual NIC in the UCS system is not created until
23 that service profile is associated; right?

24 A That is correct.

25 Q And that's true for all the interface cards that Cisco

1 uses in UCS; correct?

2 A That is true for all the -- all the VICs, that is
3 correct. All the -- for a brief time in 2009 we had these
4 cards called Oblin, which are not virtualized cards. They
5 come with two fixed lines all the time, so it is not
6 applicable to that one.

7 Q But all the other VICs; correct?

8 A All the other VICs.

9 Q So let's do this step by step. Power supply is pulled
10 out. Okay?

11 A All right.

12 Q System is totally off. So then you have UCS Manager,
13 and someone creates a service profile; correct?

14 A Yes.

15 Q Okay. And then you click the command to associate the
16 service profile with a physical server; correct?

17 A Yes.

18 Q And before the virtual NIC is created, upon association
19 UCS Manager first sends PNUOS to the CPU on the server;
20 correct?

21 A It depends on the configuration. There are
22 configurations where we entirely skip PNUOS.

23 Q Most computers do have PNUOS; correct?

24 A It depends on whether you have storage in the system and
25 whether you want to use some of the storage. In earlier

1 generations you had to use PNUOS, that's correct.

2 Q So that is executable code that runs on the CPU in the
3 server; correct?

4 A Yes.

5 Q Before the virtual NIC is created; right?

6 A I -- okay. Before or after, yes, but sounds right.

7 Q Then after that, UCS Manager essentially creates or
8 substantiates the virtual NIC on the server; correct?

9 A By talking directly to the network adapter. The PNUOS
10 has no role to play in it.

11 Q I was just saying sometime after PNUOS, UCS Manager
12 substantiates the virtual NIC; correct?

13 A By talking directly to the network adapter, yes.

14 Q And at that time the CPU doesn't have any information
15 about the virtual network interface card; correct?

16 A At that time it does not. Correct.

17 Q So at that time the CPU cannot send a message through
18 the UCS system, for example, from a software program running
19 on a CPU to another CPU in the system; right?

20 A It can, actually, if it wanted to.

21 Q Through the virtual network interface card, even though
22 it doesn't know it?

23 A When we originally set up PNUOS we set up the
24 communication BUS so that you can call the UCS Manager, and
25 PNUOS can send that information to UCS Manager. But it

1 cannot send a packet to another processor on another server.

2 Q Okay. That was my question. So at that time it cannot
3 send it to another processor?

4 A Yes, that is correct.

5 Q And, in fact, at that time right after association the
6 CPU may not even be booted; correct?

7 A Right after association the CPU may not be booted. Yes.
8 After the association we would typically shut down the
9 server, which means there is nothing running on the CPUs.
10 That is correct.

11 Q That's after PNUOS is done?

12 A Yes, that is correct.

13 Q But then at some point after, UCS Manager tells the CPU
14 to boot up according to a boot policy; correct?

15 A Yes, that is correct.

16 Q And at that point the drivers in the operating system
17 running on the CPU query the PCI line to see what interface
18 cards are connected; correct?

19 A Yes, that is correct.

20 Q And it's at that time that the operating system gets the
21 MAC address from the virtual network interface card?

22 A That is correct.

23 Q And then at that time that is the only time that the CPU
24 can then send a message from a software program running on
25 that CPU through the UCS system to another software

1 programming -- program running on another CPU; correct?

2 A That is how all network adapters or NICs work, yes.

3 Q Now, there's been some talk about programming the NIC?

4 A Yes.

5 Q That's not with executable code, is it?

6 A It is with executable code.

7 Q So software sends down the executable code, kind of like
8 PNUOS is executable code to the CPU?

9 A PNUOS is executable code on the CPU, yes.

10 Q Okay. And so the NIC is also given executable code;
11 correct?

12 A Yes, the NIC also has executable code in it.

13 Q Does it come from the fabric interconnect during service
14 association, service profile association?

15 A Does it come from the service profile association
16 during -- in some cases it can, yes. It is pushed to the
17 network adapter.

18 Q Now, you were here last week and you gave a list of
19 reasons why UCS did not infringe?

20 A Correct.

21 Q Do you recall that?

22 You did not list that UCS does not program the
23 processor as one of those items?

24 A Actually, I think I started listing all the differences
25 but I couldn't finish it because I think there was -- there

1 was some confusion with a figure. And I think you asked me
2 a question about claims, if I remember right. I don't think
3 we got to the claims at all.

4 Q But you never said, for any items for Dr. Jones to
5 attend, there was no programming in the CPUs; correct?

6 A In that particular exchange, no, but I think we talked
7 about it a few times during the trial.

8 Q You mean Cisco's counsel or someone else; right?

9 A Yes.

10 Q Now, you've been with Cisco approximately thirteen
11 years; correct?

12 A Yes.

13 Q And you're now Vice President of Engineering?

14 A Yes.

15 Q How many shares, options or restricted shares do you
16 currently own?

17 A Oh, I need to look it up. But probably as of this
18 moment, the shares I own are probably worth about \$55,000.
19 And in terms of -- I don't have options, I have restricted
20 stock units. That one I would have to look it up, but I'm
21 guessing it would be somewhere between a million to
22 \$2 million.

23 Q Now, at the end of your testimony you gave an actual
24 opinion on the '430 patent; right?

25 A Sorry. Can you repeat the question, please?

1 Q At the end of your testimony today you gave an opinion
2 regarding the '430 patent; correct?

3 A Yes.

4 Q And you said that you reviewed the patent in 2016;
5 correct?

6 A Yes.

7 Q And you were deposed in this case regarding that;
8 correct?

9 A Yes, I was.

10 Q Okay. And you said you were not a lawyer; right?

11 A I'm not a lawyer. I still am not.

12 Q At the time you reviewed the patents you were not a
13 legal expert of any kind?

14 A I'm not a legal expert.

15 Q And you have no formal training in patent law; correct?

16 A No formal training in patent law, that is correct.

17 Q In 2016 when you formulated your opinion, you did not
18 understand the legal standard for determining whether Cisco
19 infringes the '430 patent or not; correct?

20 A The legal standard, no, but as of --

21 Q Just yes or no, please. Your counsel can come up for
22 other questions.

23 And, again in 2018 when you gave your deposition,
24 you did not know the legal standard for determining whether
25 Cisco infringes; correct?

1 A I did not.

2 Q In 2016 when you formulated your opinion about the
3 '430 patent, you didn't know which portions of a patent are
4 enforced; correct?

5 A I did not know that. Yes.

6 Q The same was true when you were deposed in 2018;
7 correct?

8 A Yes.

9 Q And, in fact, at the time of your deposition you said it
10 was just your personal opinion that UCS did not infringe;
11 correct?

12 A Yes, that is correct.

13 Q And in formulating your opinion in 2016, you did not
14 apply any interpretation of the patent given by the Court;
15 correct?

16 A I did not.

17 Q Same in 2018; you didn't apply any interpretation of the
18 patent given by the Court, correct?

19 A I did not know about the interpretation of the Court.
20 So, no, I did not apply any. That is correct.

21 Q And when you gave your testimony about your opinion in
22 your deposition, you had not even seen Egenera's position on
23 why there was infringement; correct?

24 A I had not.

25 Q And you did not read any of the records or interactions

1 between Egenera and the Patent Office regarding the patent;
2 correct?

3 A No, I did not have access to any of those.

4 Q And when you read the patent in 2016 and had your
5 personal opinion, you did not write that down; right?

6 A I did not write that down, no.

7 Q You testified in 2016 that you were Director of
8 Engineering; correct?

9 A Yes, that sounds about right.

10 Q You were not a vice president at that time; correct?

11 A I was not.

12 Q And you previously testified that in 2016 UCS had a run
13 rate of about \$3.5 billion in revenue; correct?

14 A Yes. I mean, I don't remember the exact numbers but at
15 a high level that sounds about right.

16 Q And if Cisco in 2016 needed to stop selling UCS who
17 would have to approve that?

18 A That's way above my pay grade, but I'm guessing it would
19 have to come all the way down from the CEO.

20 Q So you didn't have authority to approve stopping selling
21 the patent at that time; correct?

22 A No.

23 Q And in your deposition you refused to tell us whether
24 you gave your 2016 opinion to any other Cisco employee;
25 correct?

1 A My opinion, no, I did not give my opinion to any other
2 Cisco employee.

3 Q And you did not give -- or you refused to say whether
4 you gave your opinion to any attorney or patent attorney;
5 correct?

6 A I do not remember the specifics for my deposition.
7 Sorry. I do not know what you're referring to.

8 MR. THOMASES: Well, can we call up the deposition,
9 248 at line 15?

10 May I approach, your Honor?

11 THE COURT: You may.

12 Q So on the screen is: "Well, you did not tell anyone your
13 conclusions?" Then there's an objection. "I instruct you
14 not to answer."

15 A Yes.

16 Q Then there's a correspondence between the counsel, or
17 discussion between the counsel. And then the question is:

18 "QUESTION: Are you going to follow your counsel's
19 instruction?"

20 MR. RHODES: Objection. Move to strike on
21 privilege.

22 THE COURT: Sustained.

23 Q So you refused to say whether you were going to?

24 MR. RHODES: Objection. Move to strike.

25 THE COURT: Phrased that way, advice an attorney

1 gives is privileged. So it's an improper reference. But
2 what he did he can testify to.

3 Q So you did not give your personal opinion to any
4 attorney; correct?

5 A I did not give my personal --

6 Q In 2016?

7 A I shared my observations with my attorneys, yes.

8 Q Just now though?

9 A Sorry?

10 Q In this case?

11 A I thought your question was about the deposition.
12 Sorry. Can you ask me the question again?

13 Q Okay. You did not answer the question as to whether you
14 gave your opinion to any attorney or Cisco employee in this
15 case; correct?

16 A I did not answer that question during the deposition.
17 Yes.

18 Q Okay.

19 MR. THOMASES: No further questions, your Honor. I
20 pass the witness.

21 THE COURT: Anything?

22 **REDIRECT EXAMINATION**

23 **BY MR. RHODES:**

24 Q Hello again.

25 A Hello.

1 Q So you were asked by counsel from Egenera about whether
2 you mentioned programming the CPUs as a reason for
3 non-infringement. Let's see what you told him last week.
4 So I'm pulling up the day 3 transcript from page 75.

5 And when you were being asked about claim 3, you
6 told Egenera's attorney, "It requires programming the CPU
7 for the network topology, which we don't know."

8 Was that you telling Egenera's counsel that UCS
9 doesn't program the CPU with the network topology?

10 A Yes. I think I said "which we don't do," but I think it
11 was captured as "which we don't know."

12 Q And is that an important and meaningful difference?

13 A It is a big difference because that gives us -- that
14 gives UCS a lot of differentiation.

15 Q And Mr. Thomases asked you a bunch of questions about OS
16 and booting and PNUOS. Do you remember those?

17 A Yes.

18 Q Did any of those questions show that Cisco programs the
19 CPU to establish the network topology?

20 A It does not.

21 Q And what is used to establish the network topology?

22 A The configuration of the NIC, which we do by contacting
23 it over a line from the fabric interconnect.

24 Q When you read the '430 patent, did you understand
25 "processors" to refer to CPUs?

1 A My interpretation of processors was CPUs. I mean, that
2 is a common word in the industry.

3 Q It's the ordinary meaning that people would use?

4 A Yes, that is correct.

5 Q Now, I'm putting up figure 1 of JTX-1, the '430 patent.
6 Could you please tell me some of the differences between
7 this architecture and the architecture that Mr. Dvorkin made
8 for UCS?

9 MR. THOMASES: Objection, your Honor. This is
10 beyond the scope of cross-examination.

11 THE COURT: Sustained.

12 MR. RHODES: I pass the witness.

13 THE COURT: Any last question?

14 MR. THOMASES: No. Thank you, your Honor.

15 THE COURT: Thank you very much. That concludes
16 your testimony.

17 (Whereupon the witness stepped down.)

18 THE COURT: All right. The next witness, please.

19 MR. DESMARAIS: Thank you, your Honor. Cisco calls
20 as its next witness Dr. Jeffay. And my colleague, Tamir
21 Packin, will conduct the examination.

22 MR. PACKIN: Good afternoon. I'm excited to
23 introduce Professor Jeffay. He's a professor of computer
24 science at the University of North Carolina. And what he
25 does for a living is teach this kind of stuff to his

1 students. So I think it's going to be very helpful to us.

2 THE CLERK: Please raise your right hand.

3 KEVIN JEFFAY, sworn

4 THE CLERK: Would you please introduce yourself,
5 spelling your last name for the record.

6 THE WITNESS: Good afternoon. My name is Kevin
7 Jeffay. The last name is J-E-F-F-A-Y.

8 **DIRECT EXAMINATION**

9 **BY MR. PACKIN:**

10 Q Okay. Let me hand out some binders. I'm running
11 because I'm conscious of the clock and I want to make sure
12 we get the tutorial in today.

13 Could you introduce yourself briefly to the jury?

14 A Yes. Again, hello, I'm Kevin Jeffay. I'm in computer
15 science by training. I'm a faculty member in the Department
16 of Computer Science at the University of North Carolina at
17 Chapel Hill, which is often just referred to as UNC.

18 Q And what are you going to talk to the jury about today?

19 A Today, I want to do a little bit of a technology
20 tutorial to explain some of the technology that's at issue
21 in this case.

22 Q So let's pull up your -- well, let me start by this.
23 How can you help this jury figure out whether or not Cisco
24 infringes the patent?

25 A Well, for the presentation today what I hope to do is

1 explain some of the basic concepts of computer networking
2 that are at issue in this case to help them try and align
3 some of the words that they've been hearing to the elements
4 of the claim and to the UCS system.

5 Q Okay. Great. I'm going to skip your education. We can
6 come back to it tomorrow, but I think we all know you're a
7 professor. So let's just jump right in here and go to
8 slide 7, please.

9 Now, I want to start, before we get into the
10 technology tutorial, I think we've got to start with copying
11 because that's what Egenera's been saying this whole case.
12 You've been sitting here watching all that?

13 A Yes. I've been here since the beginning.

14 Q And you heard Egenera's lawyers tell this jury that
15 Cisco copied the BladeFrame?

16 A I did hear that.

17 Q Do you agree with that?

18 A No, I don't.

19 Q Okay. We're going to go through what you looked at but
20 before we go through it, at a high level, what did you look
21 at to figure that out?

22 A So at a high level what I looked at is illustrated on
23 this slide. I looked at the computer source code. These
24 are the instructions that tell the computer what to do. And
25 I looked at both the code for the Egenera BladeFrame as well

1 as the Cisco UCS system.

2 I looked at a variety of internal documents from
3 Nuova that describe the design of the UCS system and, in
4 particular, describe how -- how and why they wanted to do
5 things differently than Egenera.

6 I've also read the deposition testimony of the UCS
7 developers where they said they wanted to do things
8 differently. And I believe they did do things differently.

9 And then, finally, I've also looked at the evidence
10 relating to the testing that Cisco did of a BladeFrame
11 product within their internal IT group.

12 Q Okay. Great. Sorry. The slides are going a little
13 more quickly. That was the overview.

14 MR. PACKIN: Now, let's start with the first
15 top-left box. And if we can zoom in on that one.

16 Mr. Herzka and I have the communication.

17 Q Why don't you go ahead and tell the jury what -- first
18 of all, what is source code? You heard a little bit about
19 that, and what you looked at with respect to source code?

20 A So I think the jury's heard several definitions of
21 "source code" and they're all correct. What I would add to
22 it is to simply say that it's text. So it's something that
23 someone actually types in at some level. It's not
24 particularly human-readable. It's actually not really meant
25 to be super human-readable. It's processed by tools. But

1 these are the instructions.

2 So you can think of the source code as, like, a
3 recipe. If you wanted to, I don't know, bake a cake or
4 something, a recipe gives you a bunch of steps. Take out
5 the butter, do this, do this, do this. That's what the
6 source code is. It's just that the steps are fantastically
7 more detailed than that.

8 Q Okay. And what source code did you look at in this
9 case?

10 A I looked at the source code for the UCS product, and I
11 looked at the source code for the Egenera BladeFrame
12 product.

13 Q And what did you conclude about copying after looking at
14 that code?

15 A I saw absolutely no evidence of any copying of the
16 source code. As I mentioned, it's text and it's actually
17 written in what we call a programming language. And it's a
18 language -- programming language is very different, just
19 like English and German are very different. The source
20 codes for Egenera are written in a different language than
21 the source code for Cisco. And in addition, as I analyzed
22 the source code, I was looking for particular similarities
23 and I just didn't find any. I mean, they appear to be
24 completely independently developed.

25 Q Okay. Let's go to the next box here which is the top

1 right, "Internal Nuova documentation." What did you look at
2 there?

3 A I looked at a variety of the Nuova documents that talk
4 about the design, the architecture and the implementation of
5 the UCS system. And some of these documents have already
6 been shown to the jury in this case. And what I'm going to
7 focus on here is how these documents specifically say that
8 there was a desire to make the UCS product different than
9 the Egenera product. And so to me that's very strong
10 evidence that there was no copying of the Egenera
11 BladeFrame.

12 Q Okay. Let's look at what else. We've heard -- just
13 heard Mr. Dvorkin today. Did you only look at Mr. Dvorkin's
14 testimony?

15 A No. There were a large number of people who were
16 deposed who aren't testifying here but were deposed about
17 their role with UCS. I reviewed that testimony and it
18 confirms that they developed UCS from scratch. I mean,
19 they -- the software, UCS Manager, as sort of at the heart
20 of this system was developed from scratch by Nuova
21 employees.

22 Q Okay. Let's go to the bottom right-hand corner. Now,
23 the jury's heard a lot about this BladeFrame test that Cisco
24 did. And did you have information about that?

25 A I did. This was -- there was a lot of evidence via

1 depositions on this test. So remember Cisco acquired an
2 instance of the BladeFrame for use in internal testing, and
3 one of the things they wanted to do was see how it stacked
4 up against products they already had in a small data center
5 that they had as part of their IT group. And at that time
6 they had systems from Hewlett-Packard, HP, and from IBM.
7 They ran tests and, unfortunately, the BladeFrame system
8 failed their tests. And to me that suggests, it's just a
9 commonsense principle, if you're testing something and it
10 doesn't meet your requirements, or if it fails the tests,
11 you're probably not going to copy it.

12 Q Okay. Let's stay with that BladeFrame test and go to
13 the next slide, which is DDX-515. You're showing here
14 JTX-32. Why are you showing this email to the jury?

15 A This is an internal email within Egenera. It's a
16 forwarding of an internal email to the CEO, who I understand
17 was the CEO of Egenera at the time, Mike Thompson. And it's
18 making Mr. Thompson, the CEO, aware of a serious problem
19 that Cisco was having with the Egenera system. And what
20 I've highlighted here, he is just saying that they're saying
21 amongst themselves that Cisco called in this major problem
22 that their blades were continually crashing and rebooting.

23 Q In the opening statements Egenera's lawyer, Mr. Thomases
24 here, he told the jury, "Cisco crashed the BladeFrame but
25 didn't tell Egenera." Did you hear that?

1 A I did.

2 Q And is this email consistent with what Egenera's lawyer
3 just told the jury?

4 A No. I mean, this is not an email from Cisco, but it
5 clearly indicates that Cisco had communicated the fact that
6 their product was crashing and rebooting.

7 Q Did you also review deposition testimony related to this
8 BladeFrame back in 2004?

9 A I did.

10 Q Okay. Let's look at the next slide, one of those. Who
11 was Mr. Christensen?

12 A Mr. Christensen was someone who I understand was the
13 director of IT Network Services within Cisco. So he was the
14 head of the internal Cisco IT group.

15 Q And what does his testimony tell you about that
16 BladeFrame test?

17 A Well, he made clear that they had performed this
18 evaluation of BladeFrame against HP and IBM. He wasn't
19 focusing here on the fact that the hardware failed. Here he
20 was just saying more politely that HP and IBM products just
21 better met their requirements and, therefore, they made a
22 decision to go forward with acquiring HP and IBM products
23 and not Egenera products.

24 Q Now, earlier in this trial Mr. Manca testified, and
25 Mr. Desmarais asked him questions, and then Egenera's

1 lawyers got up and said, Well, Mr. Manca, he didn't have
2 access to all the information in this case.

3 Did you have access to all the information in this
4 case?

5 A As far as I know I did.

6 Q And can you give the jury an overview of the information
7 that you looked at?

8 A Well, this slide shows the information that was
9 available. There was a fantastic number of documents that
10 were produced. I obviously did not read two million
11 documents. I focused on the documents that were most
12 related to the design and the implementation of the UCS
13 system.

14 There were also a large number of emails. We've
15 heard about the depositions that were taken, there were
16 about seventy of these. I focused on the depositions of
17 technical personnel.

18 And then, as I mentioned, I had access to the
19 source code for both the Egenera BladeFrame and the UCS
20 system. And in addition I went and used the UCS system that
21 Dr. Jones had set up in Virginia.

22 Q Based on all of that evidence, access to everything in
23 the case, what did you find relating to copying?

24 A So to be quite clear, I just saw no evidence of any
25 copying. I didn't see any documents that suggested, that

1 indicated or suggested copying. As I say, the source code,
2 which defines what the product actually does, is completely
3 different. So I have seen no physical evidence of any
4 copying.

5 Q Okay. Let's look at the next slide. We're up to 18.
6 So this is the '430 patent, and we've highlighted
7 Mr. Brownell, Mr. Manca's names. Were you here for their
8 testimony?

9 A Yes, I was.

10 Q And we heard them talk about being a lawyer, not being a
11 lawyer. So let's just make sure we understand. Are you a
12 lawyer?

13 A No.

14 Q Do you need to be a lawyer to read and understand the
15 '430 patent?

16 A No. I mean, as I understand it, the whole point of the
17 patent system is patents are written for this person that's
18 called a person of ordinary skill in the art. So they're
19 written for just an ordinary person working in the
20 particular field. So in this case this would be in the
21 field of networking and server design. So they may be
22 written by lawyers but they're meant to be read by regular
23 people who work in the field.

24 Q Okay. Let's pull up some of that text on the next slide
25 here that regular people who are in the field could

1 understand. What are some of the key challenges, this is in
2 column 1, what are some of the key challenges identified by
3 Egenera's patent?

4 A Sure. So if you open up the patent and you get past the
5 figures and you get into the text, the first column of text
6 describes some of the problems that Egenera was trying to
7 solve with their patent. And the two that I've highlighted
8 here from that first column is a statement that, "Generally,
9 it's not possible to upgrade processing power or upgrade the
10 CPUs on a legacy server." You get a server, it is what it
11 is, and if you want to upgrade it you have to, they say, do
12 a forklift upgrade; drag that server out and put in a new
13 server.

14 The second problem they've highlighted that we've
15 heard a lot about is this issue of cables. If you've got a
16 lot of servers and you're trying to connect them, sooner or
17 later you get a rat's nest of cables.

18 Q Okay. We're going to the next slide here, slide 20.
19 What is this wall of text that we're looking at?

20 A A wall of text is not a bad way to describe it. This is
21 claim 3. This is the language that formally defines what
22 the invention of claim 3 is. So all of the detail in here
23 is everything that a platform has to have in order to
24 infringe claim 3.

25 Q And now, without going into the detail, are there

1 multiple things in claim 3 that you think are not met by
2 UCS?

3 A Oh, yes.

4 Q Okay. Now, before we dive into the patent I'd like to
5 allow you to teach everyone here a little bit about this
6 technology and what was going on in the industry before
7 Egenera's patent. Okay?

8 A Sure.

9 Q Okay. So let's start at the beginning, make sure that
10 we're all on the same page here. So this is slide 22. What
11 are you showing the jury here?

12 A So let's start very, very simple. I apologize if this
13 is too simple. Just to emphasize that a network is a bunch
14 of computers that are connected together. And here I'm
15 showing these laptops connected by wires, even though today
16 most of us, our laptops are connected by wireless links, but
17 they're still communication links. So there has to be
18 communication links between the laptops in order for them to
19 communicate. And that set of the communication links, along
20 with the other equipment, that's what the computer network
21 is.

22 Q Okay. Let's go to the next slide. How are these
23 computers connected together?

24 A So, as I say, you actually need something to make the
25 actual connections between the computers. And today, and at

1 the time of the '430 patent, the most common device was
2 something called a switch. And you can think of a switch
3 like a, like a telephone switch. If you think of pictures
4 or old movies from, like, the 1920s where you had a
5 switchboard and an operator would pull out cables and plug
6 them into the board, what the operator was doing was making
7 connections between a caller and a callee. That's what the
8 switch does. You plug your computer into the switch, and
9 internally the switch makes a connection between an input
10 wire and an output wire, and that allows those two computers
11 to communicate with one another.

12 Q Okay. Let's go to the next slide. Now, how do switches
13 send information?

14 A So --

15 Q Or how are they used to help send information?

16 A Switches send information via -- lots of different terms
17 are used. We've heard the term "message," we've heard the
18 term "packet." Both of those are perfectly fine terms. The
19 important thing to understand is that in the communication
20 system, in order to communicate with someone that entity has
21 to have an address. So it's exactly like the postal system.
22 If I wanted to send a letter to you, you have to have an
23 address. I can't just say Bob. I have to say where does
24 Bob live.

25 So every computer on the network has to have an

1 address. One of the types of addresses that we've heard
2 about in this case is something called a MAC address. MAC
3 is one of the infinite number of acronyms that are in this
4 case. It's not a particularly insightful acronym. It
5 stands for "media access control," which isn't going to mean
6 a whole lot, so we'll view it as a type of address.

7 In this network every computer is going to have one
8 of these MAC addresses. The computers can talk to one
9 another by generating a message and addressing that message
10 with a MAC address. And then the switch, when it receives a
11 message, will use the MAC address that's on that message.
12 Think of it as sort of on the outside of the envelope. It
13 will use that address to make the connection inside the
14 switch to figure out where, where is the destination
15 computer. And here I'm showing a MAC address as simple
16 digits. I think we've heard they're significantly more
17 complex. It's the same idea. It's just a number.

18 So here laptop 1 sent a message to the switch, the
19 switch looks on sort of outside of the message, sees that
20 it's addressed to the computer with address number 3, it
21 makes the connection to address to the computer with address
22 number 3, and then it does what we call forwards, it
23 forwards the message to laptop number 3.

24 Q Go ahead and show the forwarding. Okay.

25 So the jury has heard a lot about servers. We just

1 saw one taken apart. But let's step back and talk about how
2 servers are used. What are servers used for?

3 A Servers are typically used to provide a service. And
4 they typically hold the data and the programs required to
5 deliver that service. And a server is just a computer just
6 like your laptop. It's just a beefier computer.

7 Q Okay. And do you have an animation to help you explain
8 the server as well?

9 A Sure. So let's just look at a simple service like a web
10 service. A web server provides -- web service provides a
11 service for browsing the web. If this server were Cisco's
12 web server, all of these laptops can send requests, can send
13 messages that will have an address of the Cisco web server.
14 The switch will deliver them to the Cisco web server. The
15 Cisco web server will generate a response, and that response
16 will have the address of the specific requester. The switch
17 will use that to send the web pages back to the requester.

18 Q So we've now spoken about switches and servers. Are
19 those the same or different?

20 A No, switches and servers are different things. The
21 server is the compute engine, the data engine. And the
22 switch is the interconnection engine.

23 Q Okay. We've heard about blade servers versus rack
24 servers. What's a blade server?

25 A A blade server is a industry term for a server that's

1 constructed in a very flat form factor. So it kind of looks
2 like a blade. And these are things that ultimately get
3 inserted into chassis.

4 Q And were blade servers known before Egenera's patent?

5 A Yes. Blade, the notion of a blade and a blade server
6 has existed for some time. Here's an example of a patent to
7 the Intel Corporation that happens to do with something
8 about the design of a blade server. And figure 4 that I've
9 called out here is an illustration of their blade server.
10 The blade is actually the flat part that's on the bottom,
11 and the part that looks vertical is a portion of the
12 chassis. And so, again, think of blades, they're just flat,
13 flat computers.

14 Q And for the record, this is JTX-90 that you're talking
15 about?

16 A Yes.

17 Q I'm trying to gauge the clock to see if we'll have time
18 for our Magna-Board. I think we will if we go fast. So
19 let's go ahead.

20 And were there other blade servers around at the
21 time or was it just --

22 A No.

23 Q -- was it just Egenera?

24 A No. There were lots of examples of blade servers, of
25 chassis where you put blades into them.

1 Q I'm going to skip some of these other examples.

2 Okay. So data centers, we've been hearing a lot
3 about data centers. What's a data center?

4 A So the first thing to understand, it's a place. It's a
5 physical center. It's a building. It's a room. It's a set
6 of rooms. And it's a place where you house your data, and
7 that data is housed on servers. So their location is where
8 you have a large number of servers.

9 Q Why would someone want to use a data center?

10 A Well, if you were a popular service provider, if you're
11 Netflix, for example, you've got gazillions of folks that
12 are using the servers, you're going to need a lot of servers
13 to respond to this. If you're a popular web server, you may
14 be getting millions of requests per second for service. You
15 can't respond to that with a single server. You're going to
16 need lots of servers. So you're going to need some way of
17 organizing them. And that's what data centers are for, to
18 organize a bunch of servers to deliver a service.

19 Q Let's talk a little bit more about organizing servers.
20 What are you showing on this slide, which is 5.30, with
21 respect to the green clouds and the blue clouds?

22 A So here I'm trying to introduce the concept of a local
23 area network or a LAN. When you have a lot of servers, you
24 need some way to organize them. If you've got a lot of
25 employees in a company, you need to organize them, maybe

1 into departments or divisions. And LANs are a way to
2 organize servers.

3 And the way to think about a LAN, this is a little
4 oversimplifying, it's all the computers you plug into a
5 switch, that defines a LAN. So in a sense, everybody who is
6 plugging into a physical switch, they become a LAN. Here
7 these two LANs are separate but you could connect them
8 together. And we're just not going to go into that detail.
9 Anything connected to a switch, that defines a LAN.

10 Q And traditionally how would you switch servers from one
11 LAN to another?

12 A So these are physical LANs, each one defined by a
13 switch. If, for whatever reason, the service that serves
14 LAN 1 became more popular, and we needed to put more servers
15 in LAN 1, what we'd have to do is literally go in a
16 communications closet, unplug two servers, say, from the LAN
17 2 switch, and assuming the cables are long enough, plug them
18 into the LAN switch 1 to move two servers from one LAN to
19 another LAN.

20 Q Is that what you just showed?

21 A Yes. That's what that animation shows. So now I've
22 moved two of the blue servers are now part of the green LAN.
23 In order to do that I had to physically move cables.

24 Q Let's go to the next slide. Now you have virtual LANs.
25 What's a virtual LAN?

1 A So virtual is all over this case and it's a confusing
2 term. A virtual LAN is a LAN that's created in software.
3 So the idea is that -- so, traditionally, you created LANs
4 with individual switches. What a virtual LAN means is you
5 take a simple switch and effectively you partition it into
6 two. So there's one switch but it sort of has like a left
7 half and a right half. And you can make each of those
8 halves appear to be a LAN.

9 So it's a way of making LANs, but they're virtual
10 because you still have just one switch. So if you just look
11 at it, it all looks like one switch, but internally the
12 switch is being divided effectively into two so you can have
13 two LANs, or three or four.

14 Q So let's show the jury what's happening here.

15 A So this is showing how you create a VLAN. And because
16 this is happening internal to the switch, there's no moving
17 of cables. These VLANs are established by software
18 commands. So you'll have an operator's console, another
19 computer that's also connected to the switch. It will send
20 the switch software commands to say things like, Hey,
21 partition yourself into two, take these four computers, I
22 want to have those be in LAN 2. Take these other four
23 computers, I want them to be in the green LAN, or LAN 1.
24 You create VLANs via software commands.

25 Q I think we're going to have to save the Magna-Board for

1 tomorrow. I know we've been rushing. We'll reorganize on
2 the fly so we can end sharply at 1:00.

3 We've got a Magna-Board that we brought in. It
4 will be fun for tomorrow. So that will wait for tomorrow.

5 So let's keep going here. How do you change groups
6 of servers using VLANs?

7 A So the beauty of VLANs is because they're not physical,
8 they're not -- you don't have multiple switches, in software
9 you can change the configuration of a VLAN. So now if I
10 wanted two, the two servers that were previously at the top
11 of the blue LAN 2 to part of the green LAN 1, I do that in
12 software. I just say, Hey, switch, instead of partitioning
13 yourself this way, partition yourself in this other way such
14 that these two servers are now part of the green VLAN. The
15 beauty is you're doing it with software commands and you're
16 not having to go into the comm closet and move cables
17 around.

18 Q Now, Egenera has told us that their patent is
19 simplifying the data center, has virtualization in it, has
20 cabling. Was this VLAN concept, was that -- that was well
21 known before Egenera's patent?

22 A It was well known before Egenera's time. We'll go into
23 my background, I guess tomorrow morning, but I have built
24 systems very similar to what's shown here. And I was using
25 VLANs in my lab at UNC in the mid-1990s. So it's a

1 technology that predates Egenera.

2 Q I think just so that we're on the same page, I think
3 we'll go through the technology on the slides, then we'll
4 finish with your background, then we'll start with the board
5 tomorrow. Because I don't want to interrupt in the middle
6 of the board.

7 A Sure.

8 Q So let's go ahead and talk about who else was using
9 VLANs before Egenera.

10 A Well, as I say, VLANs were widely used before Egenera.
11 And I have personal experience with that. But as evidence
12 of this, what I'm showing on this slide is a textbook that
13 was authored by a fellow named Chris Lewis and published in
14 1999. And this is sort of a technical textbook as part of a
15 series that Cisco publishes. It just teaches people about
16 how to set up networks.

17 And the passage that I've called out here is a
18 passage where Mr. Lewis is describing what VLANs are and
19 some of the benefits. And what I've specifically
20 highlighted and underlined in red, he said, "With VLANs
21 there's no need to move cables ever again." As I say,
22 that's true because you reconfigure them with software, not
23 by moving cables.

24 Q And this book, which is JTX-77, for the record, is that
25 describing a particular product?

1 A It does. Because it's a Cisco book it uses as examples
2 a particular Cisco switch that was made that's had the brand
3 name Catalyst. And it describes something, a particular
4 model called the Catalyst 5000 switch.

5 Q And what are you showing on the next slide, JTX-288?

6 A This is an excerpt of some content that previously
7 appeared on Cisco's website as of December 12th, 1995. And
8 this is just evidence that people were using VLANs early in
9 the 1990s and it was solving problems that they had. Here's
10 a particular customer's comment that's talking about the
11 Catalyst 5000 switch. And the part that I've underlined
12 here is it's saying, "We're easily saving ten or more hours
13 per week that we used to spend swinging cross-connects." A
14 cross-connect is a type of cable. Instead of swinging these
15 cables to rewire stuff, by using VLANs they're saving time.

16 Q So let's go ahead to the next slide. We've got JTX-80
17 here. What are you showing the jury on this slide?

18 A This is a patent that was issued to Cisco Corporation by
19 Mr. Silvano Gai, G-A-I, who was previously at Nuova. So
20 he's someone we've heard about. This is to emphasize that
21 Cisco had patented ways of using VLANs before Egenera.

22 So this is a patent that talks about a specific
23 problem with using VLANs, and they invented a way of solving
24 a particular problem with VLANs that was related to VLAN
25 topology.

1 Q Did anyone other than Cisco use VLANs before Egenera?

2 A Yes. As I say, VLANs were widely used.

3 Q So let's show the jury another example. This is JTX-81.

4 A This is another patent that was issued before Egenera
5 existed as a company. This is to an inventor called Aziz.
6 And Aziz is also building a data center. Aziz uses
7 different terminology, he calls his data center a virtual
8 server farm. So "farm" is, for better or worse, a term we
9 often use to refer to a collection of computers.

10 Aziz had designed this server farm such that he
11 didn't have to do any rewiring in order to create these
12 virtual server farms. And it's not shown here, but
13 elsewhere in Aziz it talks about how part of the solution
14 here was doing this with VLANs.

15 Q Okay. So now that we've given the jury some background
16 on what was going on before Egenera, are we ready to turn to
17 Egenera's patent?

18 A Sure.

19 Q So what was the issue that Egenera's patent was solving
20 and how was it solving it?

21 A So these are, again, call-outs from the '430 patent.
22 The first one is, again, talking about how cabling could
23 represent a failure point. If you have to physically move
24 cables you can make a mistake. And that's bad.

25 The second issue that this is talking about is this

1 notion that remember they said producing that patent that it
2 was difficult to upgrade a server or upgrade the power of a
3 CPU. So if you wanted to bring more processing power to
4 bear on a problem, they wanted to organize their system
5 along the notion of a processor area network, or this thing
6 called a PAN. So whereas traditionally most folks who built
7 these networks made a network of servers, so a network of,
8 like, the server that you see in front of you, Egenera had
9 this interesting alternate approach which was to make a
10 network of just the processors, so processing area network.
11 And they were going to do this in such a way that, again,
12 you didn't have to deal with any cables when you established
13 a processor area network.

14 Q Okay. So I was hoping to get to the Magna-Board but
15 that didn't happen. Let's take the opportunity, for the
16 last few minutes I'll let you actually tell the jury about
17 your credentials. So let me go back.

18 MR. PACKIN: Can you go back to the beginning?
19 Okay. Here we go.

20 Q Now, I think we all know you're a professor, but why
21 don't you tell us about your education?

22 A Okay. So, hello again. I'm originally from Illinois.
23 And when I went to school, I went to the state school in
24 Illinois, the University of Illinois at Urbana-Champaign. I
25 originally studied mathematics and, in fact, got a degree in

1 mathematics. But while studying math I got seriously
2 interested in computer science. And to get some credentials
3 in computer science, I went to graduate school and
4 ultimately got a master's degree in computer science.

5 During that master's degree I got exposed to doing
6 computer science research and I really liked it. So I
7 worked for a very little bit after I got my master's, but
8 then decided I really wanted to be a researcher. And so I
9 went back to school, this time to the University of
10 Washington in Seattle, and ultimately got a Ph.D. in
11 computer science.

12 Q And are you the inventor on any patents?

13 A Yes. Over the years I maintained a networking lab at
14 UNC, and graduate students and undergraduate students work
15 in the lab. And over the years innovations that they've
16 developed in this lab have been patented. So ultimately I'm
17 a co-inventor with students on four networking-related
18 patents.

19 Q Okay. Let's go to the next slide. Can you tell the
20 jury, obviously you've been a professor for a long time,
21 just a little bit about your academic career?

22 A Sure. When I graduated from Seattle, I was recruited by
23 UNC to be a faculty member there. So I essentially joined
24 the faculty right after I graduated. So I've been there
25 since 1989. So this coming semester is my 34th year at UNC.

1 I currently have a fancy title. Officially I'm the
2 Gillian Cell Distinguished Professor of Computer Science.
3 And as of July of this year I stepped down as being the
4 chair of the department. For the last eight years I was
5 chairman of the department.

6 I've been at UNC essentially nonstop since '89.
7 Although a long, long time ago I took a leave of absence to
8 be on the faculty of Carnegie Mellon University in
9 Pittsburgh.

10 Q Do you have any publications?

11 A Yes. As you might imagine, when you do research,
12 particularly in academia, you write a lot of papers. My
13 students and I have written over 100 articles that have
14 appeared in journals and books and things like this. And
15 some of these works were interesting enough and there was
16 enough interest in it that we expanded the work to sort of a
17 full-length text. And so with some of my students I'm a
18 co-author on four computer science texts.

19 Q Have you won any awards for your publication?

20 A Yes. And when I say "I," I always want to emphasize
21 that, you know, the students really are the ones who do the
22 heavy lifting. The students have won awards and I share in
23 their victories.

24 Q And what's --

25 MR. PACKIN: We're on DX-UN, your Honor. I offer

1 that as the next exhibit.

2 THE COURT: Very well.

3 **(Joint Exhibit No. 563 received in evidence.)**

4 Q What are you showing the jury on this slide?

5 A This is just the cover page of a paper that one of my
6 students, Mikkel Christiansen, wrote in 2000. I won't go
7 into it in terrible detail, because I'll have to explain
8 another acronym, but this paper won the most prestigious
9 award in computer networking in 2000. And while that was a
10 long time ago, I'm showing you this paper because in order
11 to get the results that this paper published, we built a set
12 of server clusters using VLANs attached to a storage
13 network. So a lot of the technology that we'll talk about
14 is technology that I have firsthand experience with because
15 I've used it in my research. And this award-winning paper
16 was actually based on building the equivalent of a small
17 data center.

18 MR. PACKIN: And DX-UN is JTX-563, for the record.

19 Q Outside of academia, do you also have industry
20 experience? Let me go back here.

21 A Yes. This particular slide is really emphasizing what I
22 would consider more professional experience. In the broader
23 computer science community, I've been very active in
24 organizing technical meetings where people will come
25 together and present papers and discuss research. And I was

1 an executive committee member for a professional society
2 that's known as the ACM, it's the Association for Computing
3 Machinery. And for, I actually don't remember, three or
4 four years, I was helping organize some of the major
5 meetings for that field.

6 Another professional society is called the IEEE,
7 which stands for the Institute for Electronics and --
8 Electrical and Electronics Engineers. Again, they publish
9 journals, they run meetings. And I was involved in all of
10 that. And based on the work I did, because I was a good
11 volunteer I got a service award.

12 In addition, I've done work for the National
13 Science Foundation, which is a federal agency. And this is
14 the dominant agency that funds computer science research in
15 the U.S.

16 Q And have you ever testified in a court like this before?

17 A I have.

18 Q About how many times?

19 A I've testified in front of a jury maybe six or seven
20 times.

21 Q And was it in the capacity as a professor of computer
22 science or in what capacity?

23 A Yes. Yes, in the role in which I'm here today. Yes.

24 Q And we mentioned a lot of material that you reviewed in
25 this case. How much time have you spent poring over

1 materials in this particular case?

2 A Well, I was first contacted about this case in late 2016
3 and I started working in, I think, early-ish 2017. So
4 it's -- I've been working for about five years. And I do
5 not know the exact number, off the top of my head, but it's
6 many hundreds of hours.

7 Q And after all of those hundreds of hours studying
8 everything, what did you conclude with respect to
9 infringement in this case?

10 A What I concluded is that the UCS system really and truly
11 is a fundamentally different computer system than the
12 Egenera BladeFrame. And these differences are fundamental.
13 And they really go to sort of a core philosophical
14 distinction about how one should design a blade frame
15 server. And as a result of these pretty fundamental
16 differences, it's my opinion that the UCS system does not
17 infringe the '430 patent.

18 Q And do you agree with what Dr. Jones said regarding how
19 the UCS product works and whether it meets the claims?

20 A I think some of the factual nuts and bolts of how it
21 works, I think what he said is accurate. It's just I
22 disagree with the conclusions that he draws as a result of
23 that.

24 MR. PACKIN: Your Honor, I was trying to get our
25 Magna-Board done in time to break at 1:00, but now would be

1 a good breaking point. I know we're five minutes early.

2 THE COURT: We're a little bit ahead today, and I
3 don't think we're going to otherwise interrupt the flow.
4 Why don't we.

5 MR. PACKIN: That would be great. Thank you.

6 THE COURT: All right. All right, jurors, that was
7 a good day. And I think we should have an equally
8 interesting day tomorrow. I'll see you at the usual time,
9 9:00.

10 THE CLERK: All rise.

11 (Proceedings adjourned.)
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C E R T I F I C A T E

We, James Gibbons and Cheryl B. Palanchian, Court Reporters for the United States District Court for the District of Massachusetts, do hereby certify that the foregoing pages are a true and accurate transcription of our shorthand notes taken in the aforementioned matter to the best of our skill and ability.

/s/ James Gibbons 8/10/2022
JAMES P GIBBONS

/s/ Cheryl B. Palanchian 8/10/2022
CHERYL B. PALANCHIAN